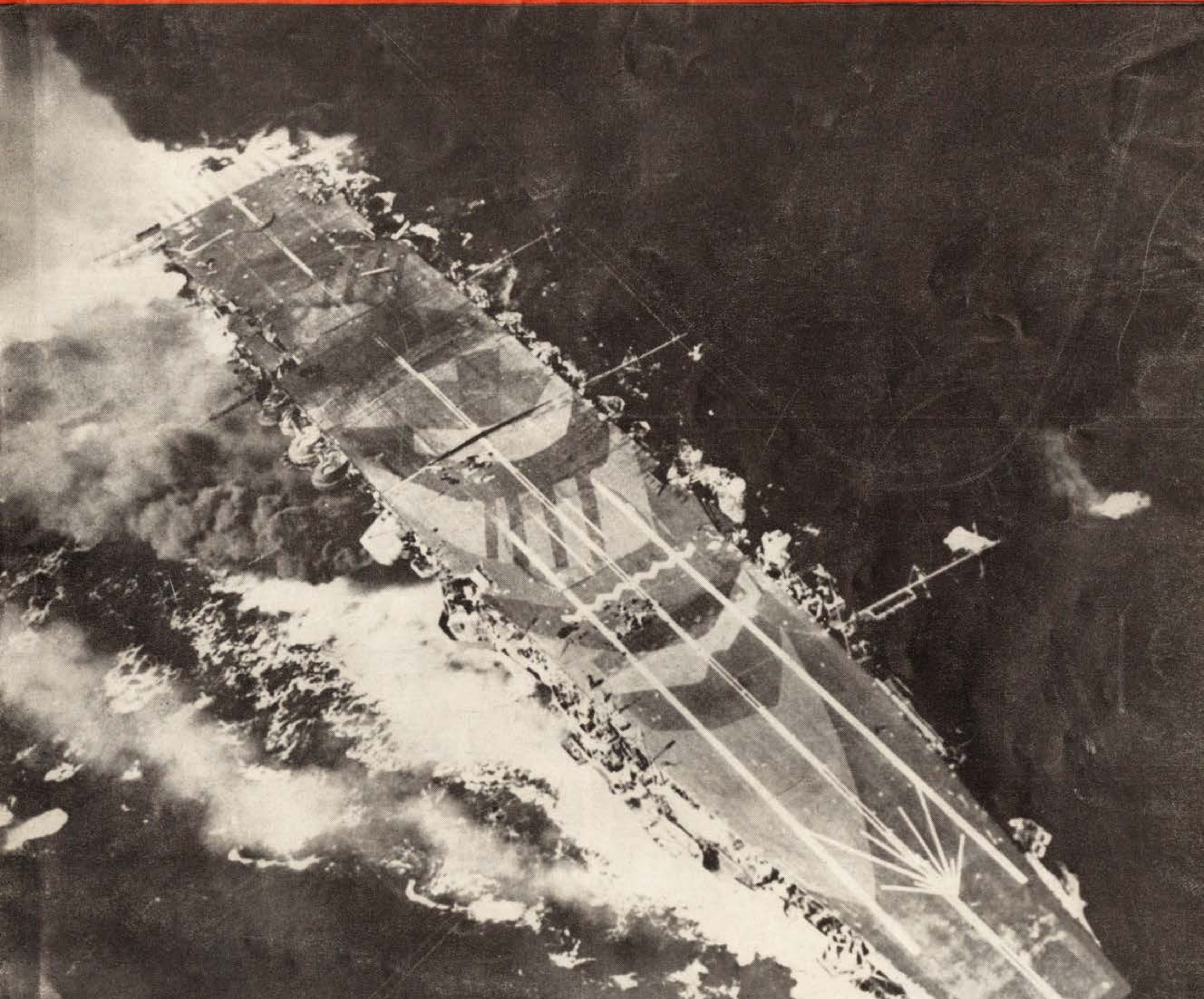
RECOGNITION
JOURNAL



BATTLE OF THE PHILIPPINES

~~RESTRICTED~~
JANUARY, 1945
NUMBER [redacted] 17

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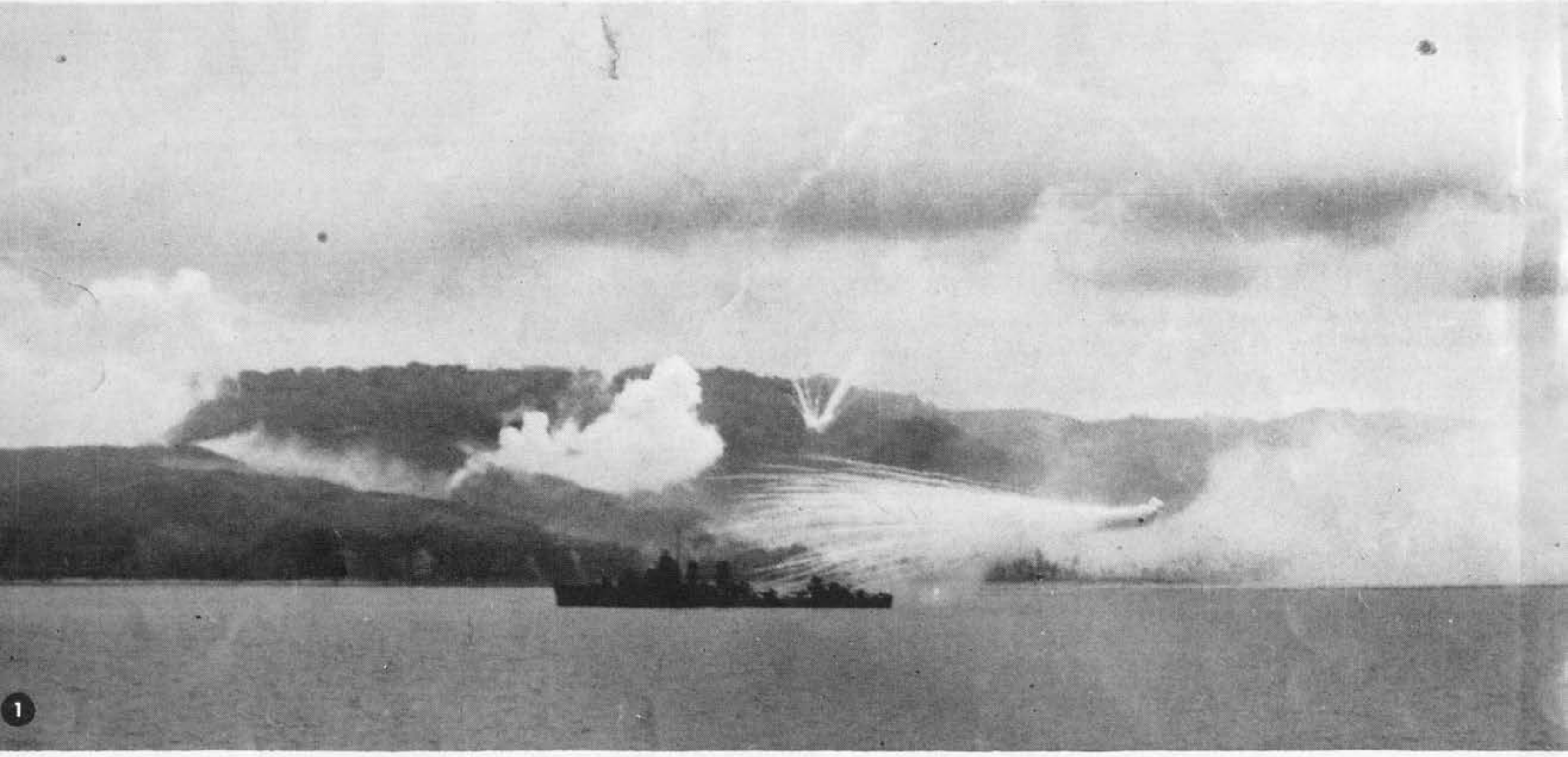
QUIZ NO. 1: ALLIED SHIPS IN COMBAT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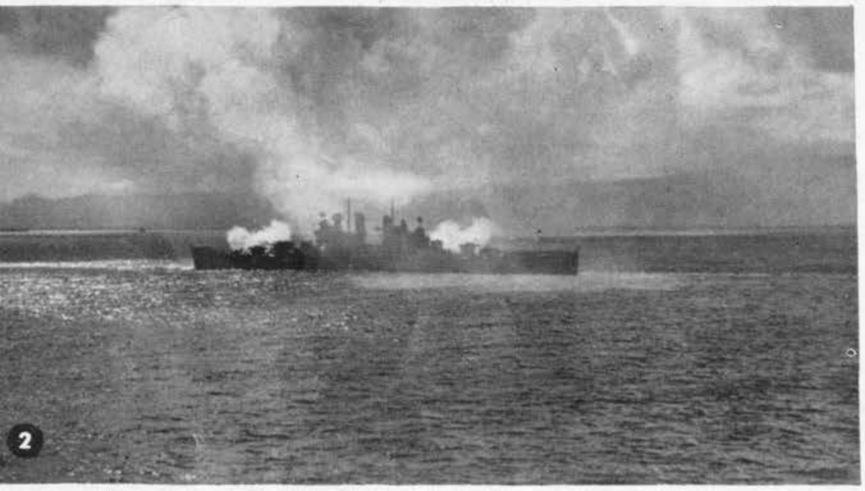
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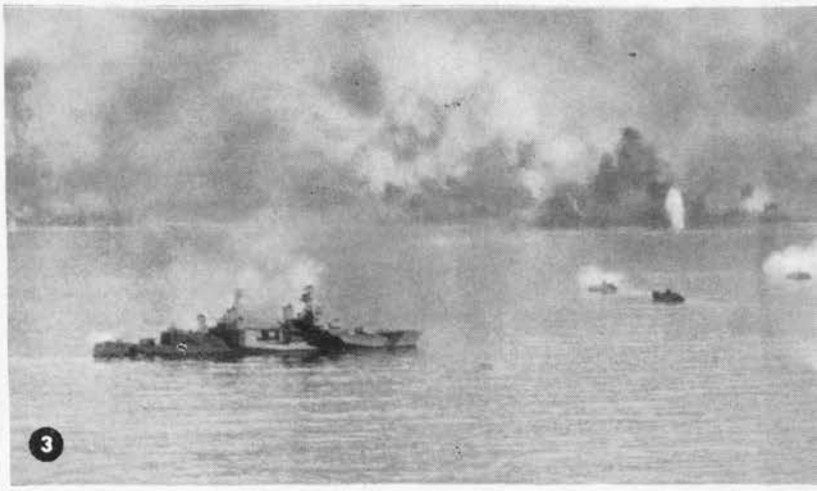
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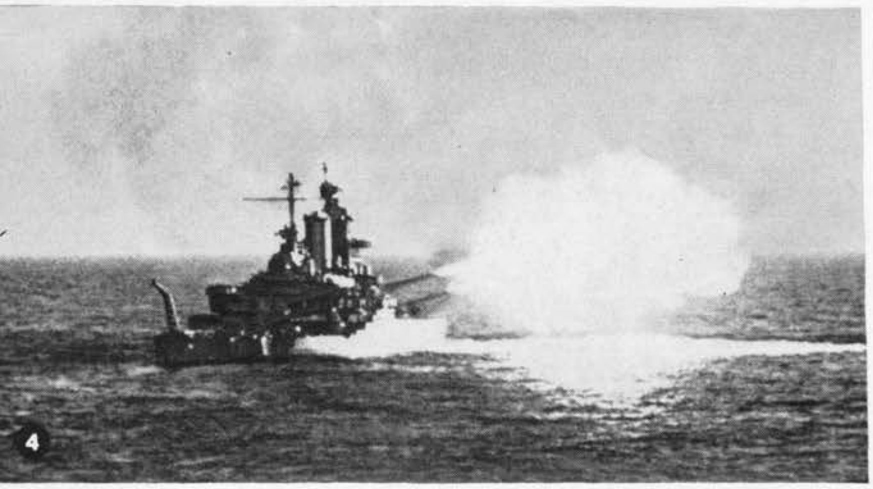
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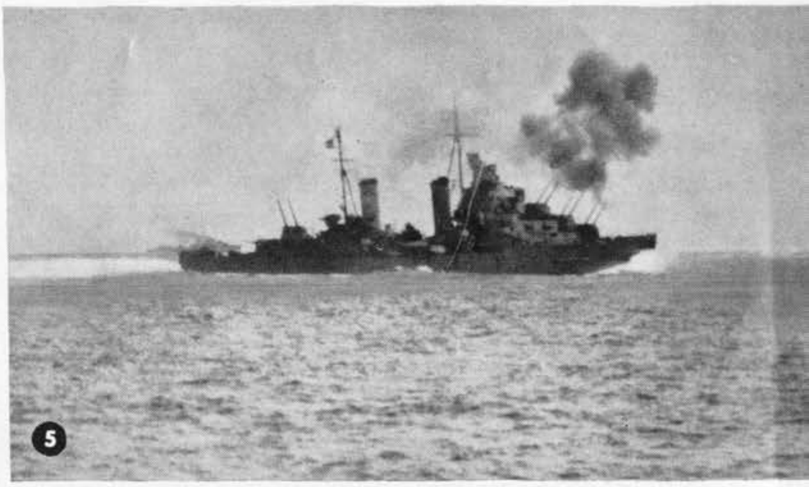
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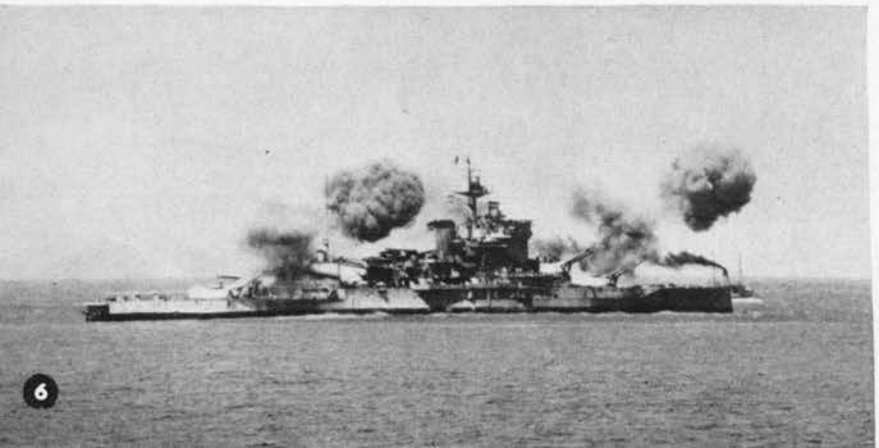
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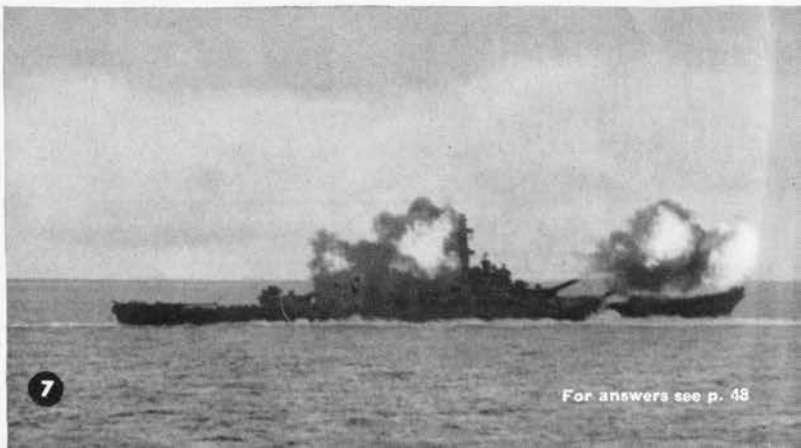
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For answers see p. 48

NUMBER 17
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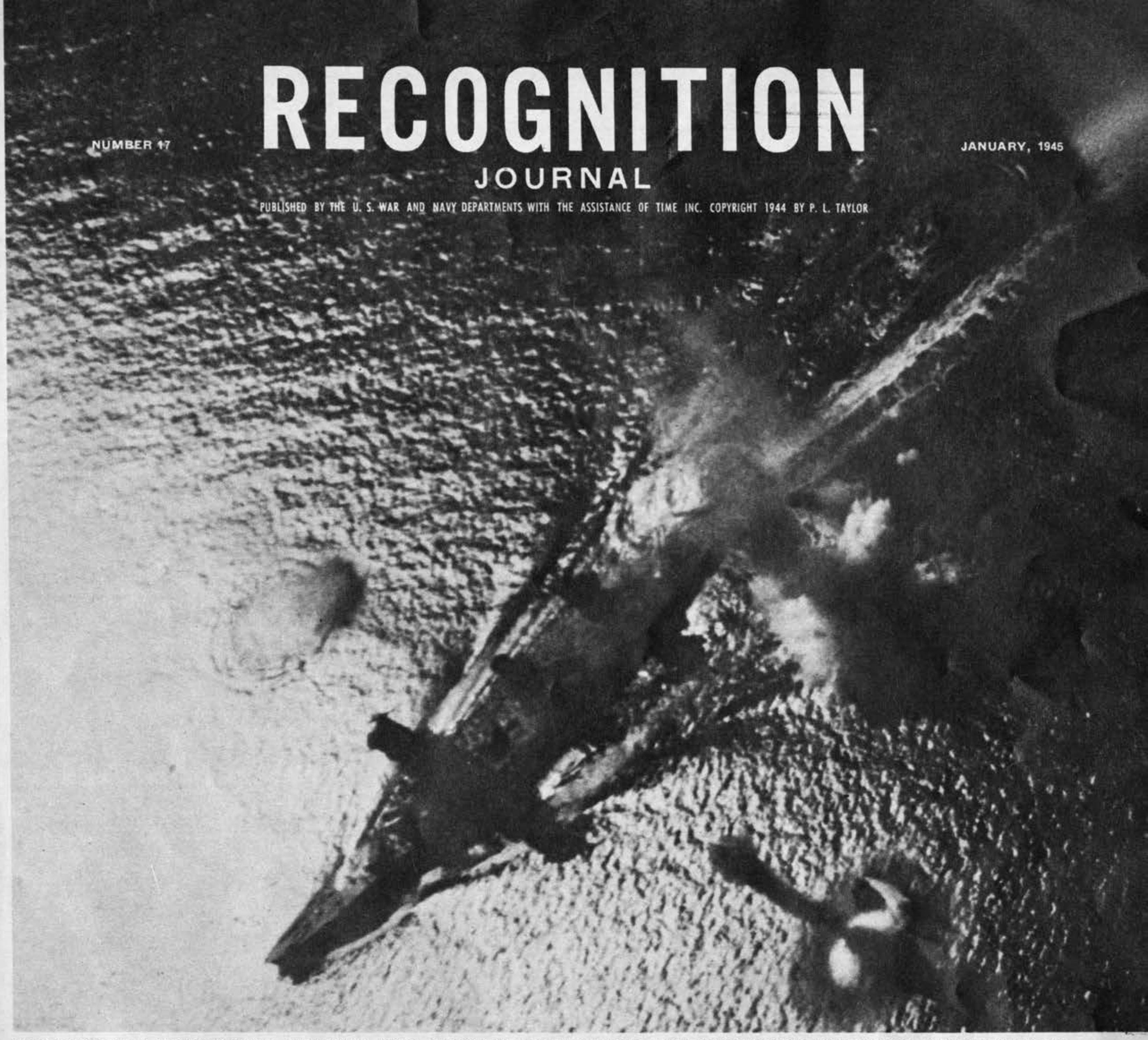


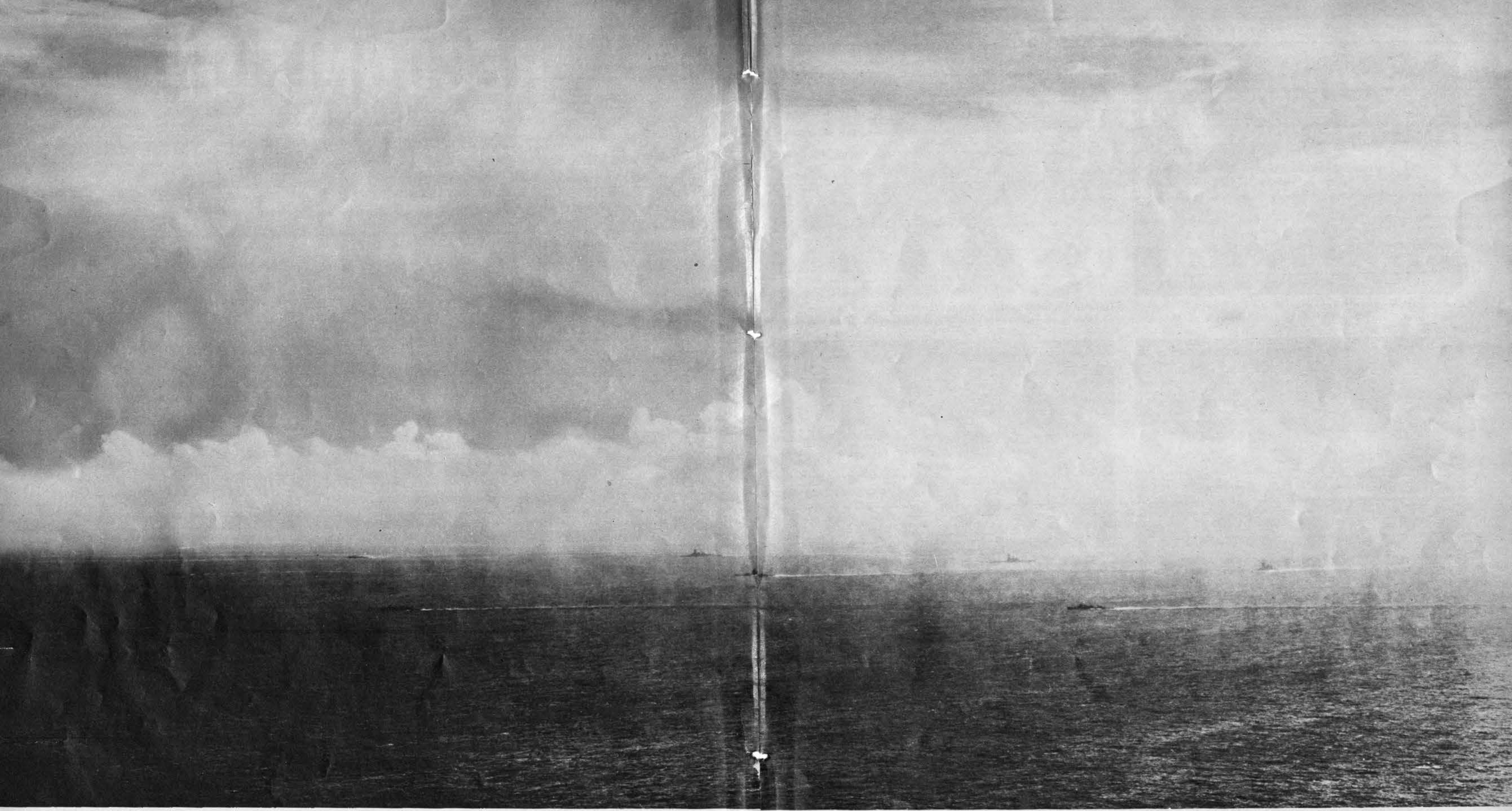
BOMBS STRADDLE JAP BATTLESHIP YAMASHIRO AS IT PLOWS ON THROUGH AERIAL ATTACK TO ITS FINAL DESTRUCTION IN SURIGAO STRAIT

PHILIPPINE SEA

In the grim year of 1942, an outmatched U. S. fleet gave battle in the Coral Sea, at Midway and the Stewart Islands to save the last Allied defense line, that based on Australia and Hawaii. At great sacrifice this strategic necessity was more than met. Japanese initiative was blunted and at Guadalcanal the U. S. started its great rebound off the ropes and across the Pacific. Japan marshaled her mauled forces to crush this Solomons drive, but was rebuffed at Santa Cruz and in the night battle off Guadalcanal. Then for two long years there was no major sea engagement in the Pacific. Japan hoarded her strength while the U. S. gathered overwhelming power and began pushing out through the islands toward the Empire.

This year, as the U. S. reached the inner defenses—the Philippines, Formosa and the Ryukyus—the Japs found themselves in our 1942 strategic position and were forced to come out. First they attempted a hit-and-run carrier attack on our fleet investing Saipan, then in November an all-out, three-way drive on the Leyte covering forces. In these two battles of the Philippine Sea, the Japanese failed to give us even a temporary setback. Instead, they suffered crippling losses themselves.

In the complex second battle, Japan committed the major part of her fleet, of which all but a few units were sunk or damaged. This is not a decisive victory since Japan can return the injured vessels to service in a few months despite U. S. air raids on repair bases. It is an important victory, however, for Japanese ingenuity cannot salvage the two battleships, the four carriers and the numerous cruisers and destroyers which U. S. sea and air power sent to the bottom. Moreover, the Philippine Sea battle yielded a great wealth of material on both new and familiar Japanese Navy units. By studying these photographs and reports, some of which are presented on the following pages, we will be even better prepared to meet the Japanese fleet when it next emerges.



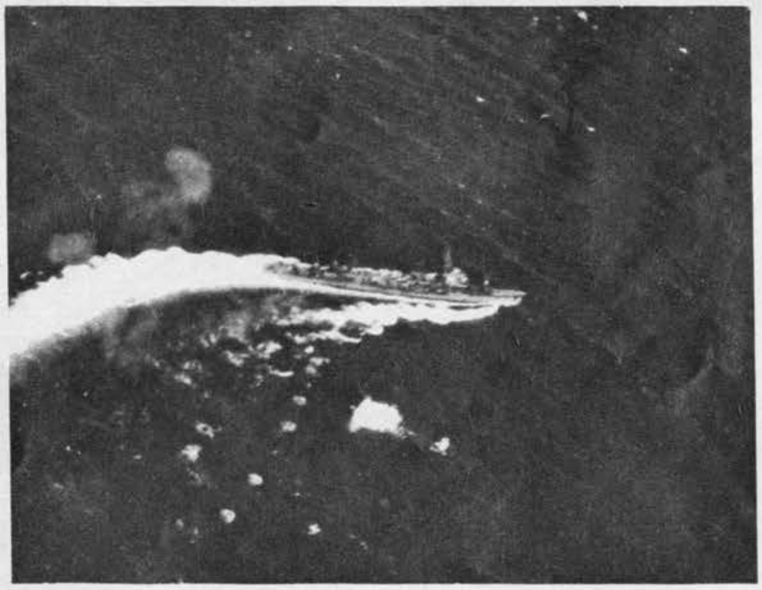
IN MAGNIFICENT PANORAMA OF GREAT NAVAL POWER IN DEFEAT, FORCE A FLEES AT HIGH SPEED TOWARD SAN BERNARDINO STRAIT. CORE OF FLEET IS MADE UP OF UNITS OF KONGO, YAMATO AND NAGATO CLASSES WITH A HEAVY CRUISER ON EACH FLANK. FOUR DD'S FORM OUTLYING SCREEN

JAP OBJECTIVE WAS OUR SEVENTH FLEET

Three-pronged attack aimed to isolate beachhead

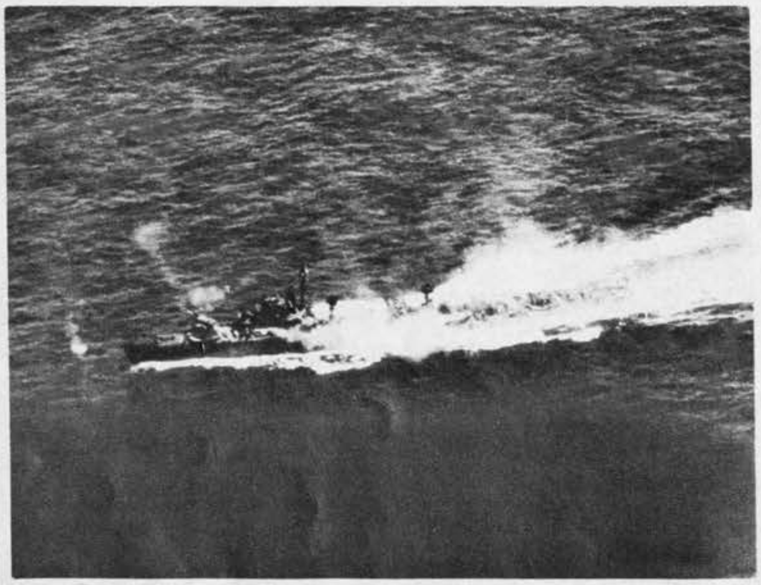
Admiral Toyoda's plan of attack was bold and complex. His ships were divided into three fleets—forces A and B were built up around battleship divisions, while force C was backboned by the Zuikaku, three CVL's and the two Ise Class BB-XCV's. Force C was to move southward and divert our powerful Third Fleet from the Leyte area. Forces A and B were to thread through the Philippine archipelago and erupt into the Pacific on either side of Leyte-Samar. Composed of two Yamatos, two Kongos, the Nagato and eleven cruisers, the A fleet was to come out through San Bernardino Strait and overpower the Seventh Fleet's heavy units or draw them northward. Meanwhile the smaller B fleet (built around the overage Fuso and Yamashiro) would slip through Surigao Strait into Leyte Gulf and destroy the supply ships and transports lying off the beach. The Japanese counted heavily on land-based airpower from Philippine fields to offset their weakness in carriers.

West of the Philippines both A and B forces were sighted and attacked by our submarines and carrier-based planes. In spite of sinkings and damage the Japs held stubbornly to their course. Inside the archipelago they were funneled by the narrow landlocked waters into San Bernardino and Surigao Straits—the only two exits into the Pacific. The Surigao bottleneck was corked by five Seventh Fleet battleships which virtually wiped out force B as it emerged. These Seventh Fleet units then returned to Leyte Gulf to stand guard over the beachhead convoys. At San Bernardino, the Third Fleet turned north to crush the sudden threat of force C by sinking all four of its carriers. In the Third Fleet's absence, however, the Jap A fleet pushed through San Bernardino and bore down on a small U. S. flotilla of escort carriers and destroyers. Although badly battered, this weak force fought a brilliant rearguard action against the Japanese battleline for several hours. Warned of the defeat of the B and C fleets and the approach of U.S. units released by these victories, force A finally broke off the action and retreated through San Bernardino Strait pursued by our aircraft.

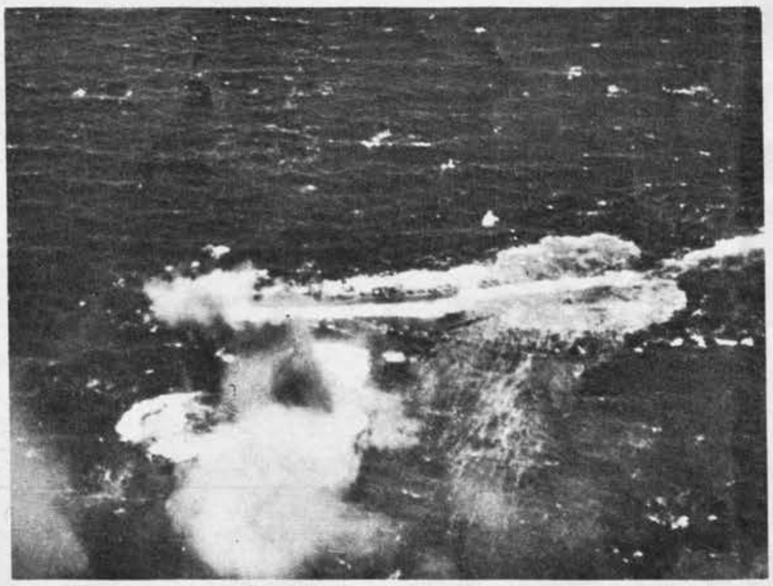


Under attack by carrier-based aircraft of the Third Fleet, a Terutsuki Class destroyer weaves through water at high speed to evade bombs.

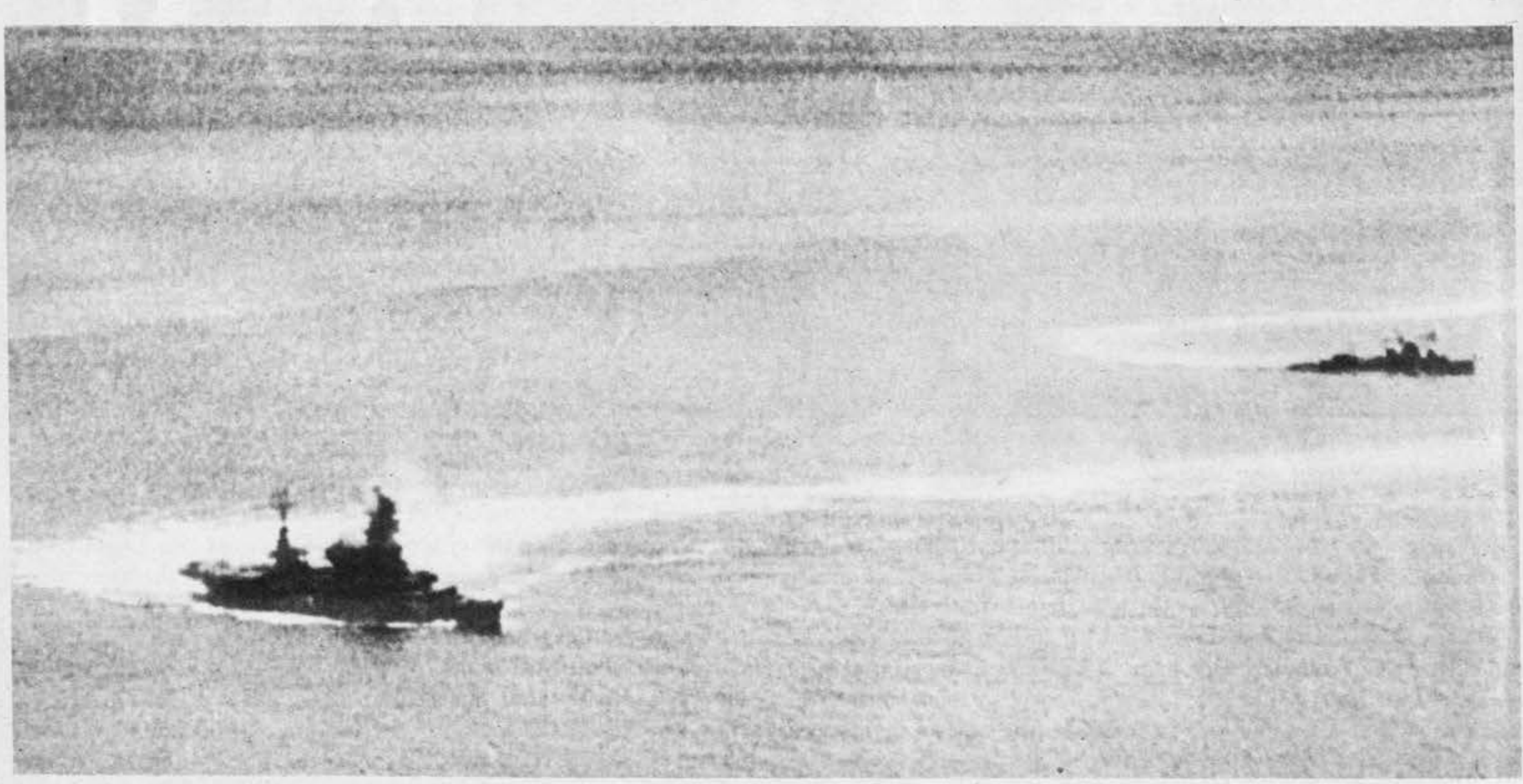
Isolated mainmast, single stack and foretower of graceful Agano Class CL loom black against sunlit sea. The ship was sunk a few hours later.



New Matsu Class DD has simple raked bow and low, stepped bridge. Two stacks are thin and widely spaced, second one aft of amidships.



With bow blown off, Takanami Class DD still makes headway. Takanamis have cluttered forward stack and AA platform forward of bridge.



Mongrel Ise Class BB-XCV shows carrier stern as it wheels around under aerial attack. A Terutsuki curvets at the right. Rebuilt Ises have dropped casemate guns but still retain the towering foremast structure and substantial mainmast. AA is concentrated around the hangar deck.

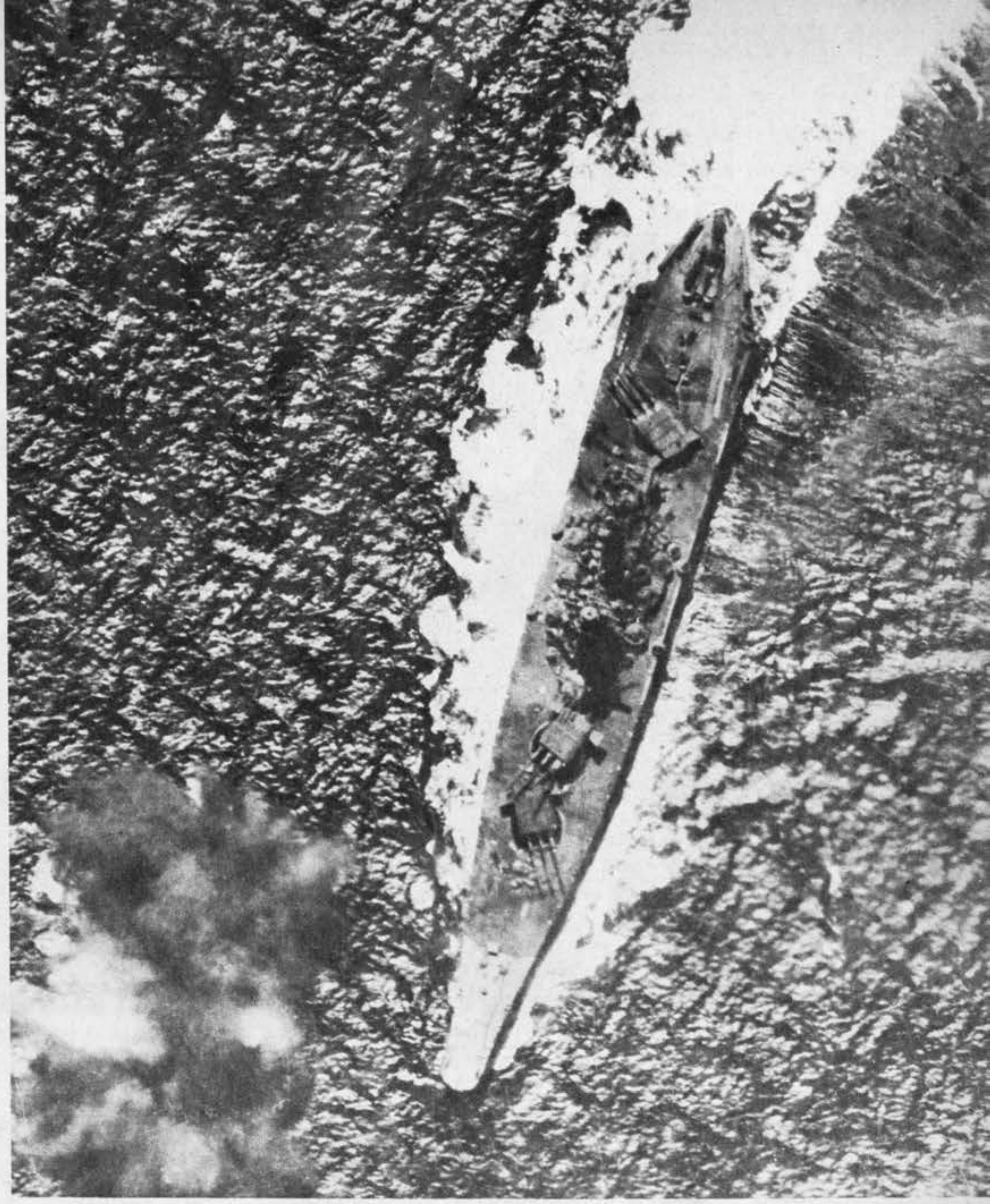
THEIR SHIPS

With their aerial cameras, the Third and Seventh Fleets also won a victory for U. S. recognition. The long-hidden Japanese Navy was thoroughly photographed and the veil of uncertainty clinging to both new and old units finally lifted.

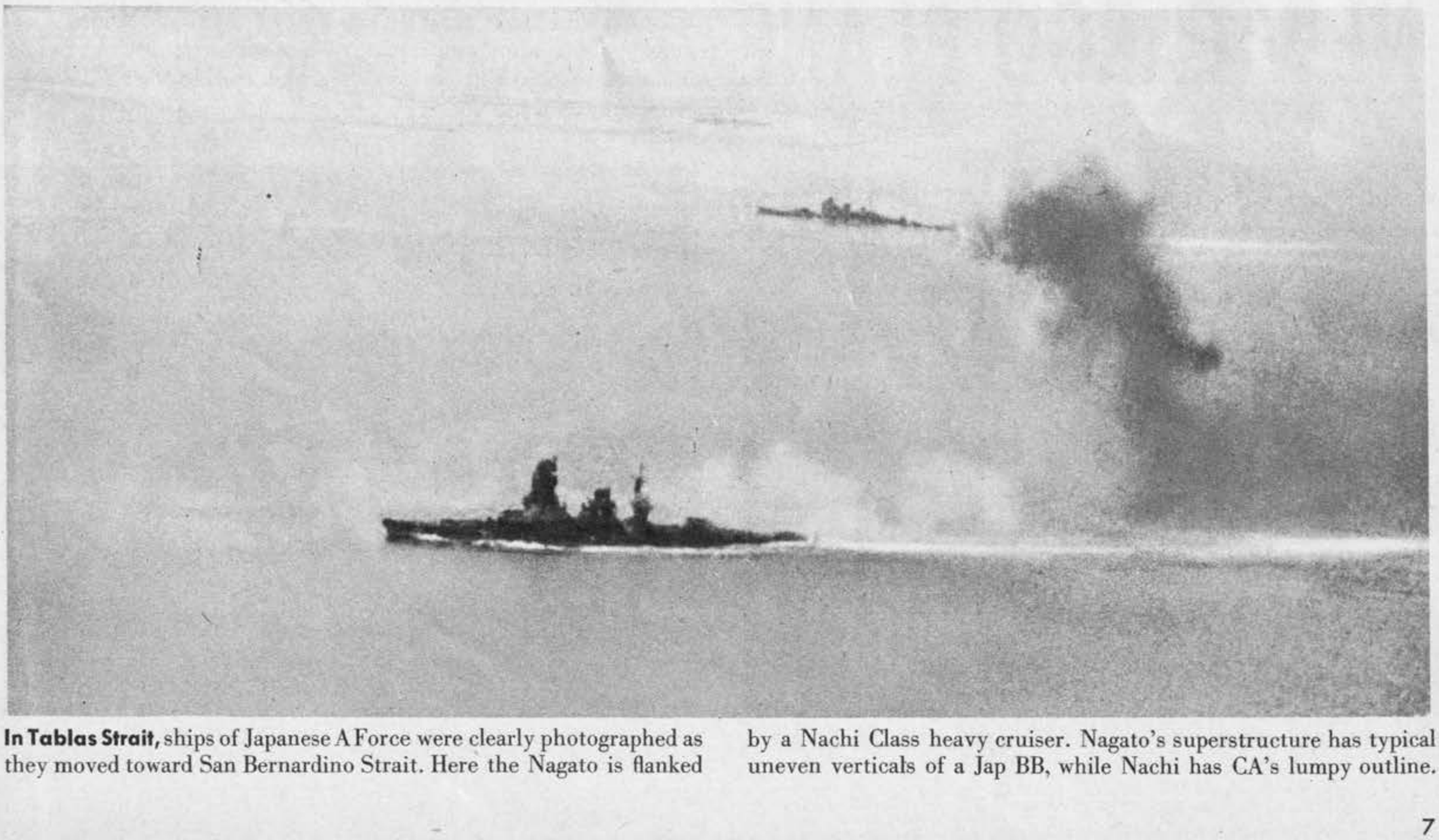
On the *Journal* cover is one of the most dramatic photographs of the war, taken when a Third Fleet pilot swept low over the doomed CVL Zuiho. The flight deck, camouflaged to suggest a battleship, has buckled from internal explosions. Other important photographs show the Yamato and Ise Classes. Clear overhead views of the 840-foot Yamato confirmed in general tentative drawings that had been made of this class. Also confirmed were reports that the two after turrets on Ise Class BB's had been replaced with flight decks. Aside from this change the rebuilt Ises remain essentially the same in appearance.

One clear picture was also obtained of the Matsu Class, new Japanese DD (*opposite page*). This 300-foot ship is a radical departure from previous Japanese destroyer design. It appears to be unconventional in armament, but there is no information as to caliber or disposition.

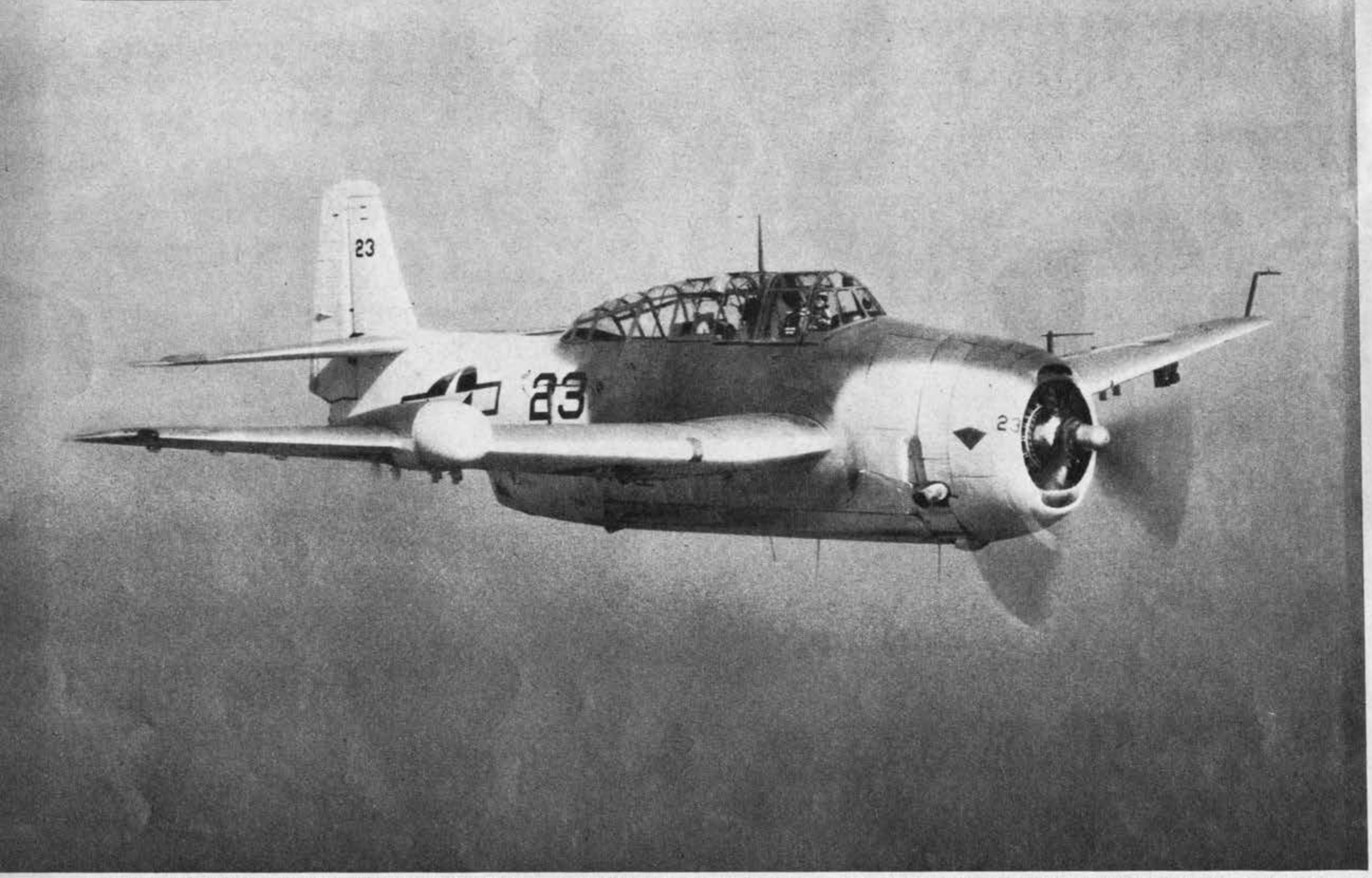
As a result of the Philippine victory, ship classes have been removed from the recognition list. With the sinking of the Zuikaku, the Shokaku Class is now extinct, as is the Chitose Class of CVL's. The Fuso Class of battleships no longer exists, while deep inroads have been made in Japan's CA's, especially in the Atago Class.



Superfiring 6-in. guns are in triple turrets above Yamato's main battery. Single raking stack is separated from tower foremast. Note twin projections of catapults on each side of the stern.

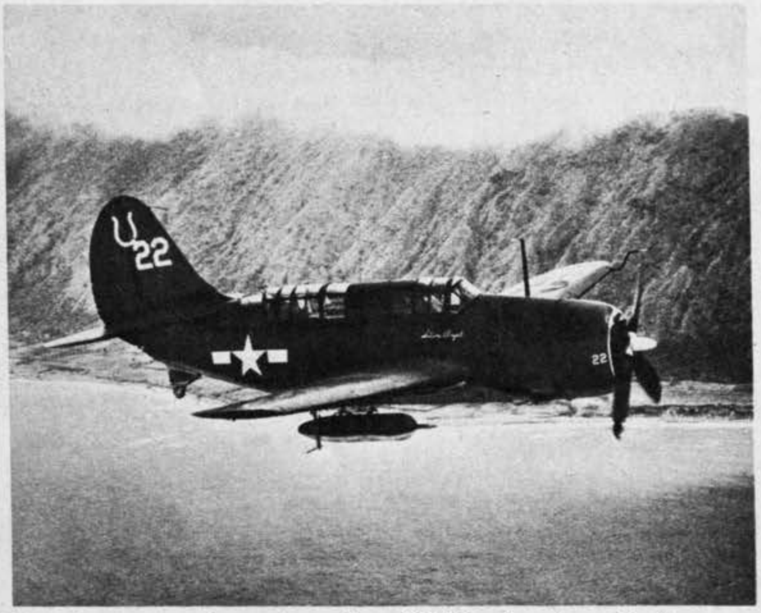


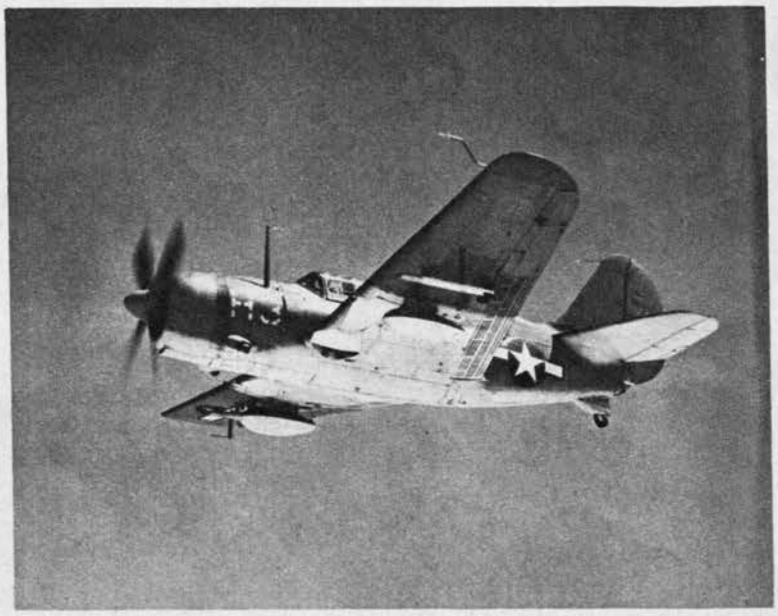
In Tablas Strait, ships of Japanese A Force were clearly photographed as they moved toward San Bernardino Strait. Here the Nagato is flanked by a Nachi Class heavy cruiser. Nagato's superstructure has typical uneven verticals of a Jap BB, while Nachi has CA's lumpy outline.

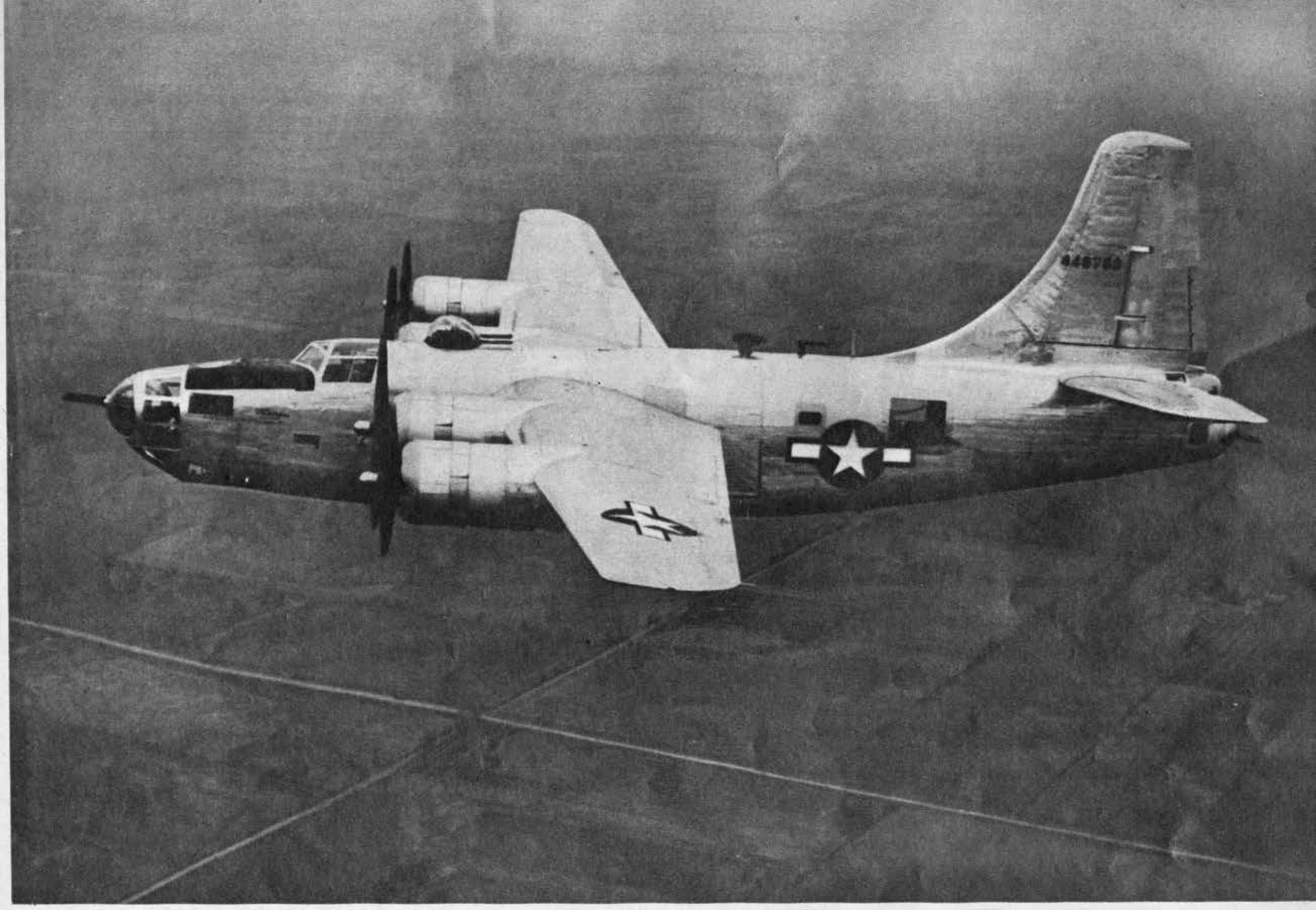

ON THE TBM-3 A CURVING GREENHOUSE EXTENSION REPLACES THE FAMILIAR BALL TURRET. RADOME BREAKS STARBOARD WING'S LEADING EDGE

BOMBER CHANGES & NEW CARGO PLANE

Recent developments in U. S. aviation include modifications on three bombers and acceptance of a huge new cargo plane, the C-82. The Navy's Avenger (*above*) appears as TBM-3 with dorsal turret removed and a radome on the starboard wing. A Douglas gun package has been installed under the wing of an SB2C-3 (*below, left*), while on the latest Helldiver, SB2C-4, perforated diving flaps mark the wing's trailing edge. With the XB-24N the Army is obtaining a single-tail Liberator which also has a new nose turret. A range of 3,500 miles and ability to carry ten tons feature the C-82 Packet.

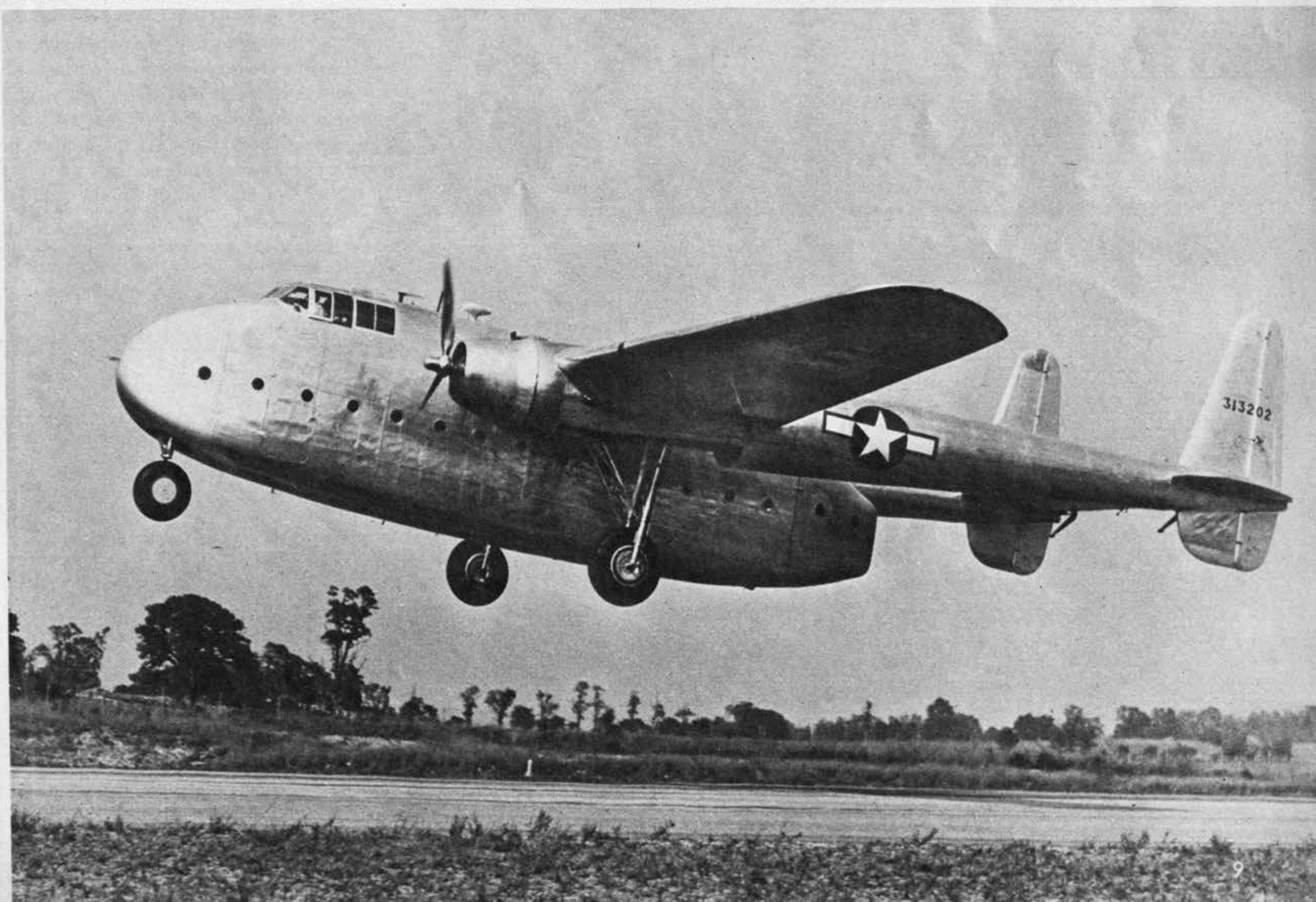

Douglas gun package hung from Helldiver's wing adds firepower for strafing. Twin .30's for defense protrude from rear greenhouse.


Perforated diving flaps distinguish the SB2C-4 from previous Helldivers. Auxiliary fuel tanks and rockets can be seen on this SB2C.

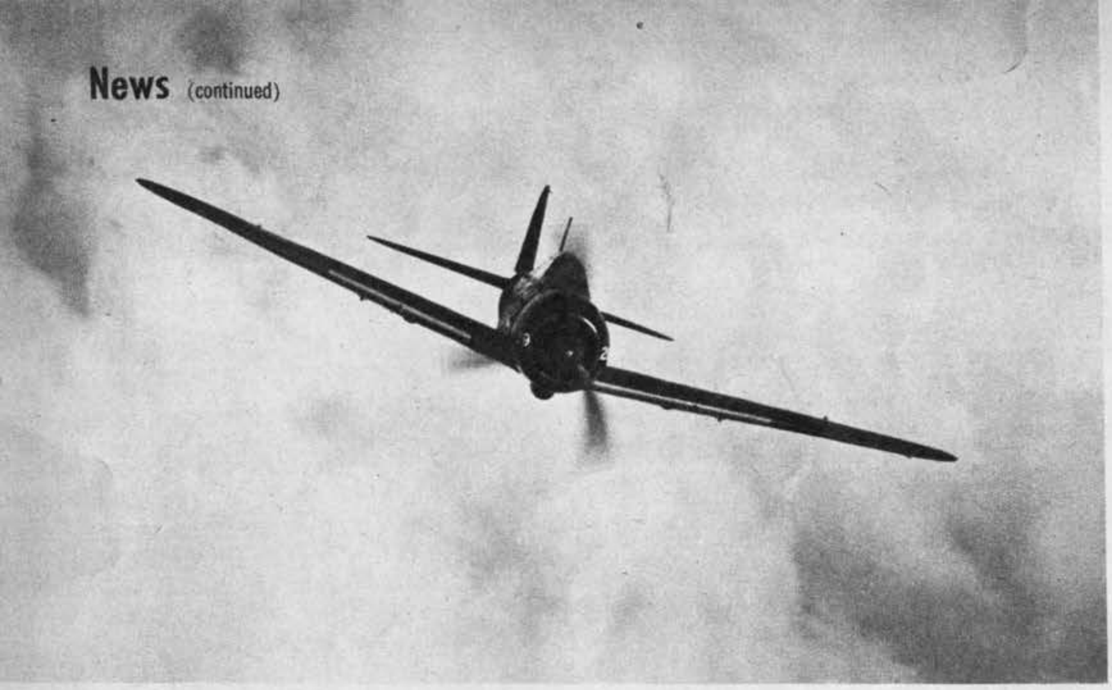


SINGLE TALL FIN AND RUDDER GIVES ARMY'S XB-24N ADDED DIRECTIONAL STABILITY. NOSE HAS A NEW LIGHTWEIGHT EMERSON BALL TURRET

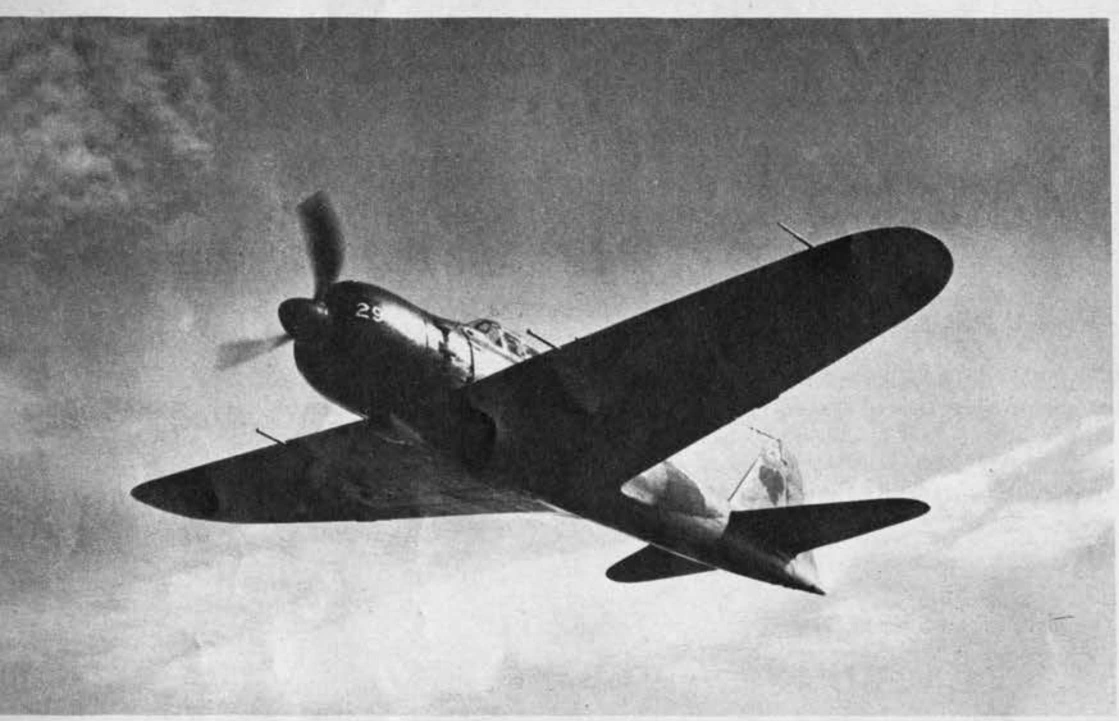
C-82's BOXCAR FUSELAGE WILL CARRY BULKY FIELD EQUIPMENT. THE ANGULAR FINS AND RUDDERS RISE HIGH ABOVE THE RECTANGULAR TAILPLANE



AXIS WARPLANES POSE FOR ALLIES



High cockpit cover and an oil cooler below the engine mar Zeke 52's otherwise beautifully clean lines. Its wingspan is 36 ft., 5 in., exactly three feet less than the earlier Zekes'.



Wing guns on Zeke 52 are high-velocity 20-mm. weapons. The fuselage lines sweep back smoothly from the clean cowling to a sharp point at the tail which extends behind rudder.

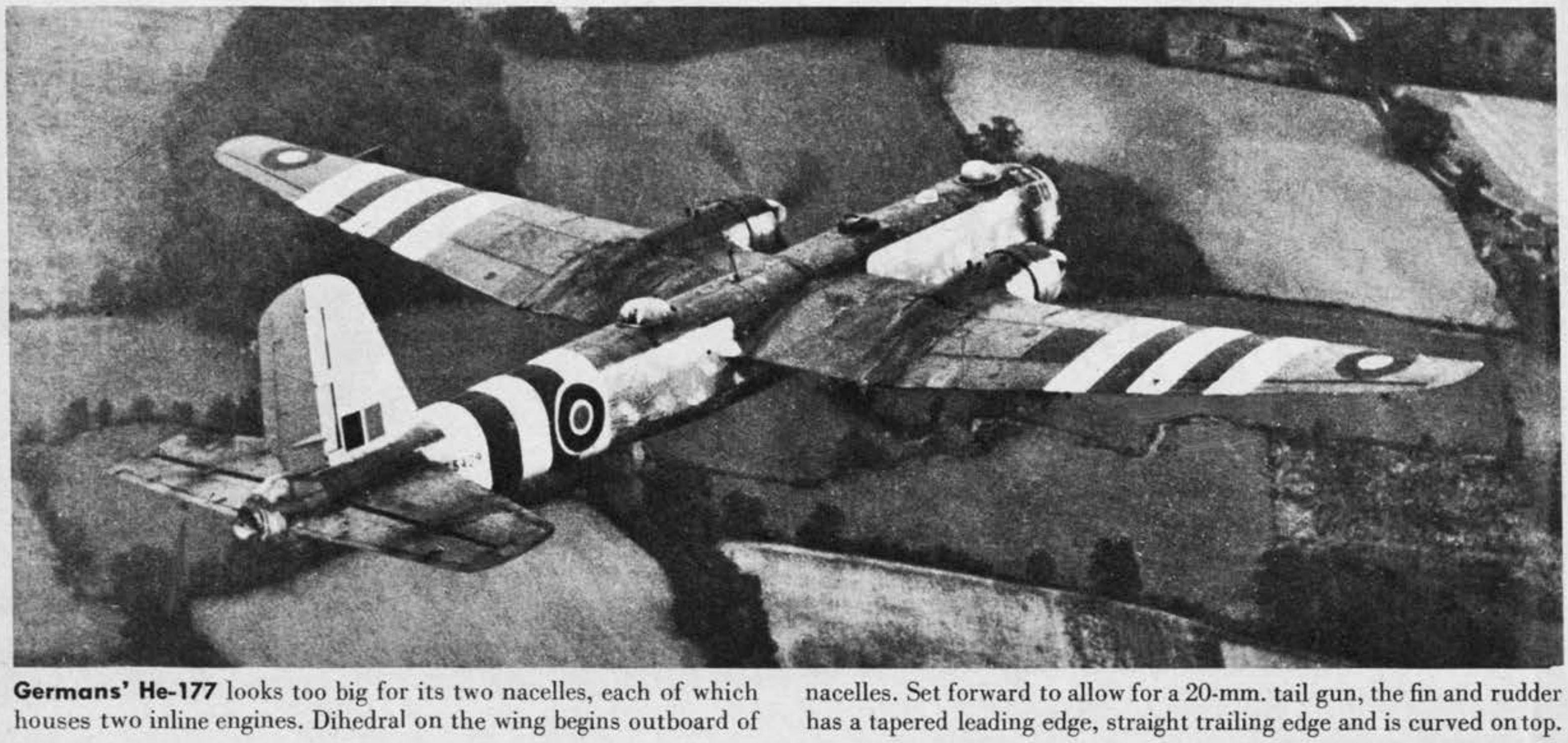
The capture of three important enemy airplanes—Zeke 52, He-177 and Me-410—has provided a fresh picture source of these Axis types. Such prizes for technical and recognition experts are naturally rare, but in one way or another both sides in this war have obtained several enemy types in good condition.

Occasionally an airstrip is seized before the defenders' planes can be evacuated, as at Saipan where the U. S. Navy got the Zeke at left. A disgruntled Rumanian pilot contributed a Ju-88 to Allied intelligence. Faulty navigation caused a perfect FW-190 to land in England.

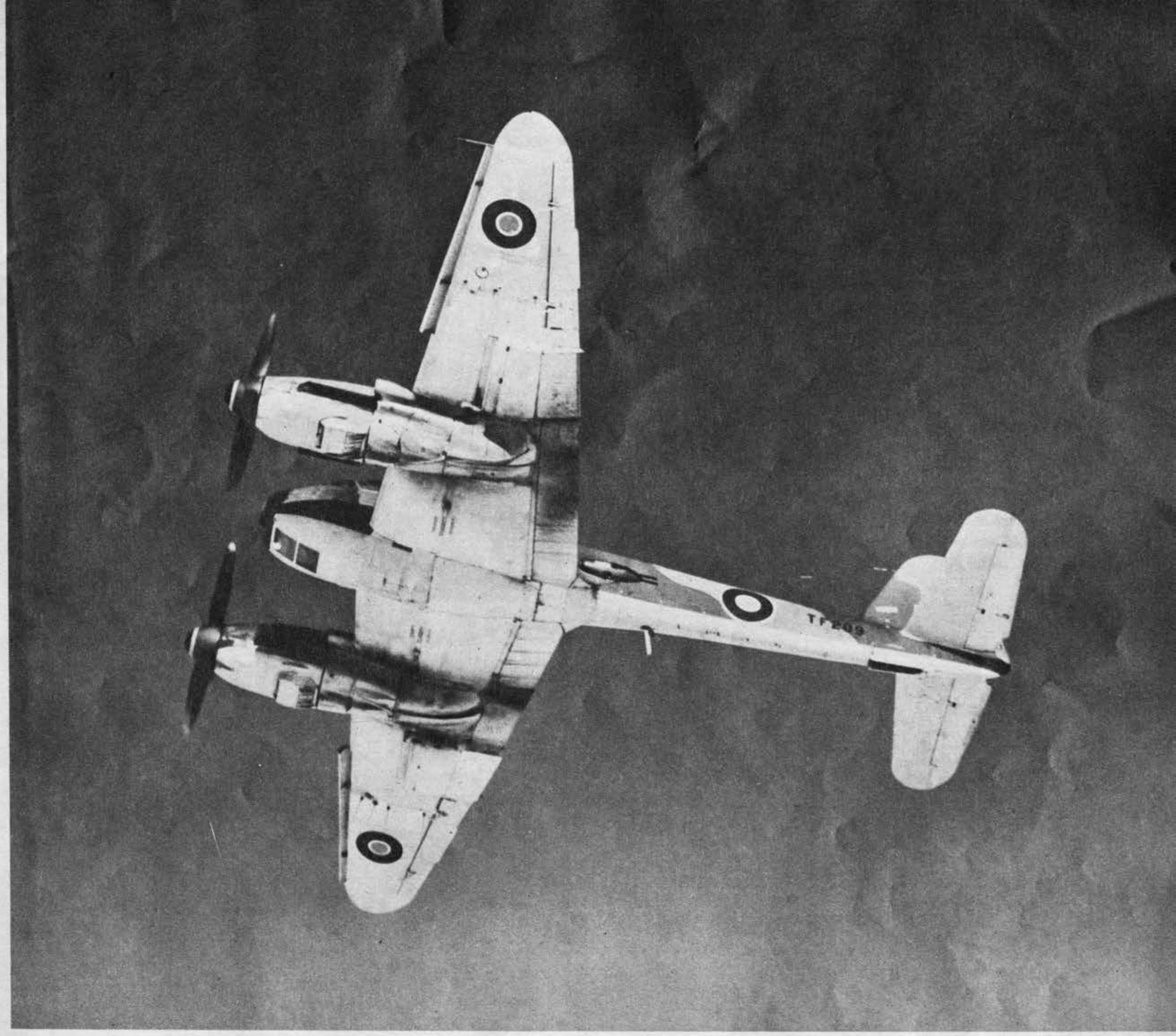
Although new models are now in action, Zeke 52 remains the Japanese Navy's most widely used fighter. Except for its shorter span and blunt wingtips, it differs little in appearance from the Zekes which flew over Pearl Harbor. The perfect symmetry of its wing and fuselage makes it one of the cleanest designs in action today.

Contrasting sharply with the trim Zeke is the burly He-177 (*below*). This Nazi bomber was designed as an anti-shipping weapon, as such carries the Hs-293 glider bomb. Since last January it has occasionally flown over England in night raids. It can be recognized by its heavy nose and the angular lines of its mid-wing and tailplane.

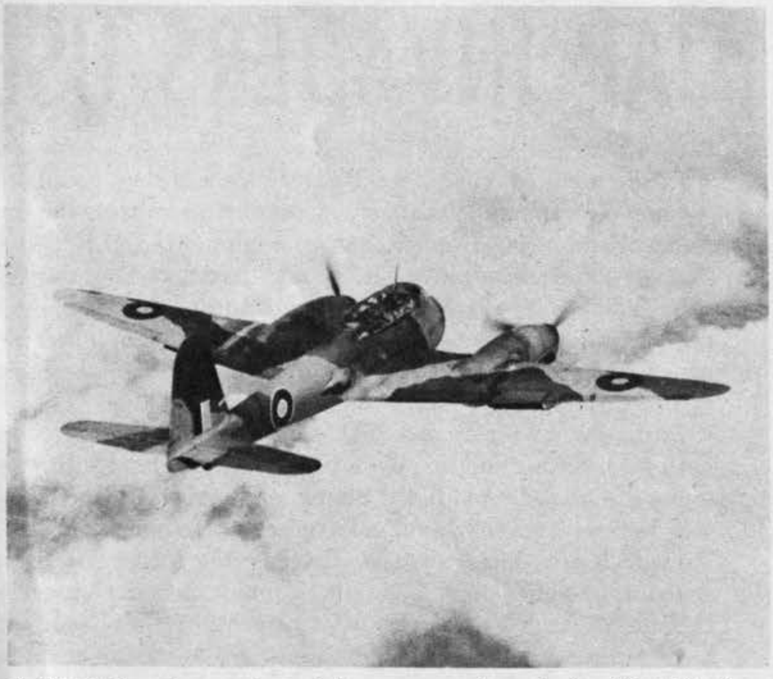
The Me-410 (*opposite*) is one of the Luftwaffe's most successful planes, serves as a light bomber, day and night fighter, and reconnaissance plane. Its main features are the low wing, humped nose and long nacelles housing inline DB-603 engines.



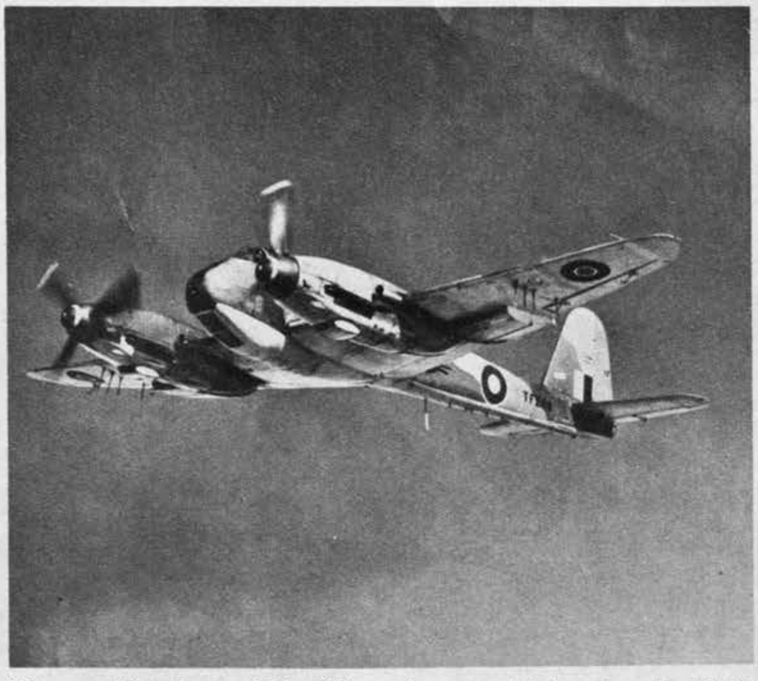
Germans' He-177 looks too big for its two nacelles, each of which houses two inline engines. Dihedral on the wing begins outboard of nacelles. Set forward to allow for a 20-mm. tail gun, the fin and rudder has a tapered leading edge, straight trailing edge and is curved on top.



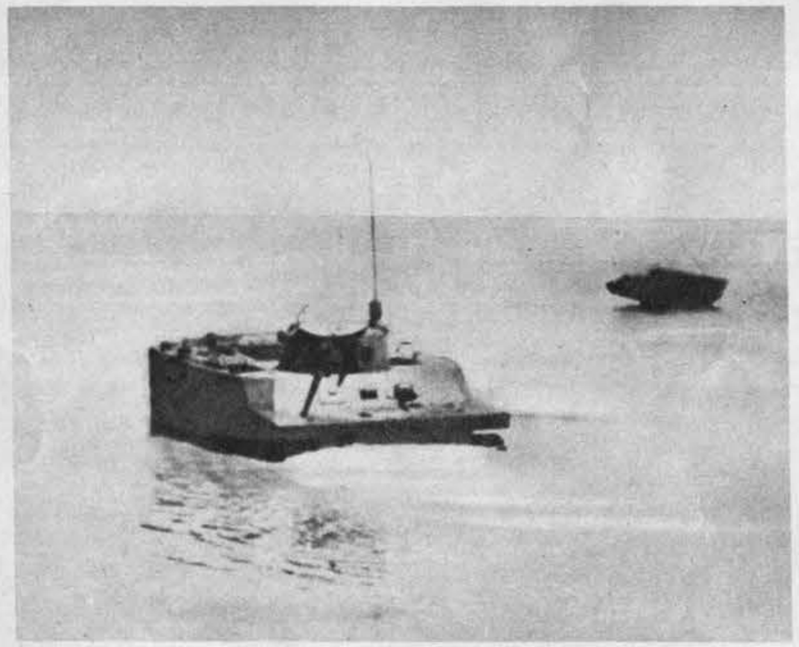
Me-410's low wing is characteristic of all small German twin-engine planes. Slots mark the wing's leading edge which has about the same taper as the trailing edge. The shadow cast by the one side gun in this photograph makes it appear as though the blister actually carries two.



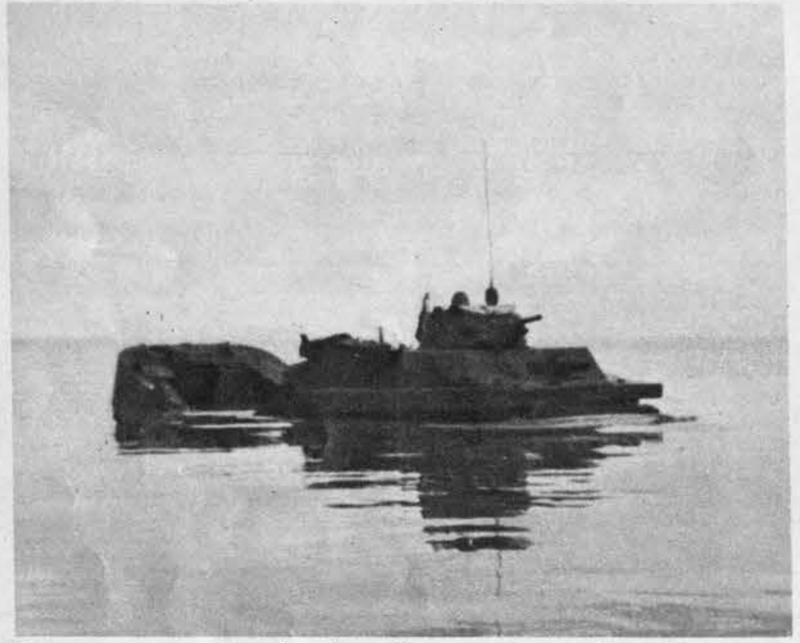
A thin tail and an extremely heavy nose characterize Me-410's fuselage. The tailplane is wide; the single fin and rudder is unusually tall.



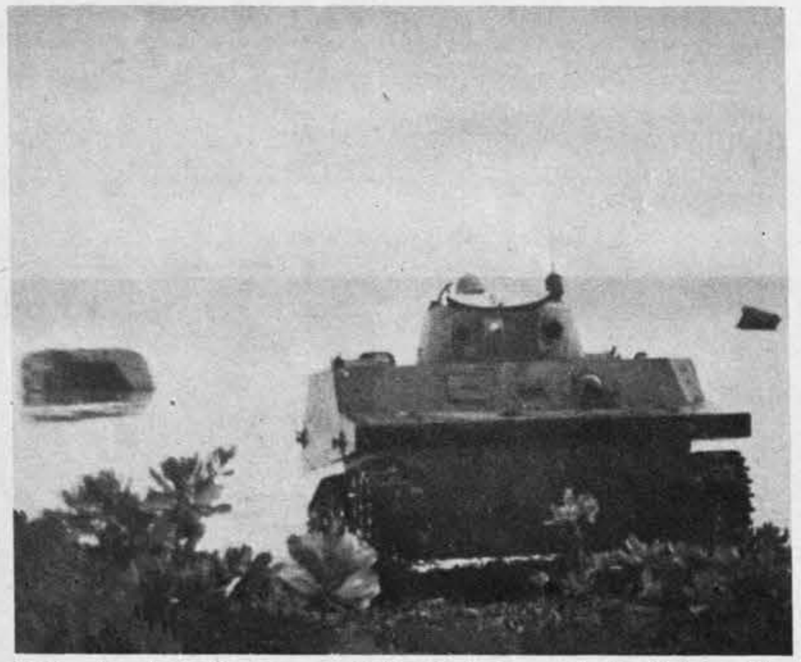
Wing and fuselage of Me-410 may be seen with bomb racks. Radiators outboard of the DB-603 engines are visible from many angles.



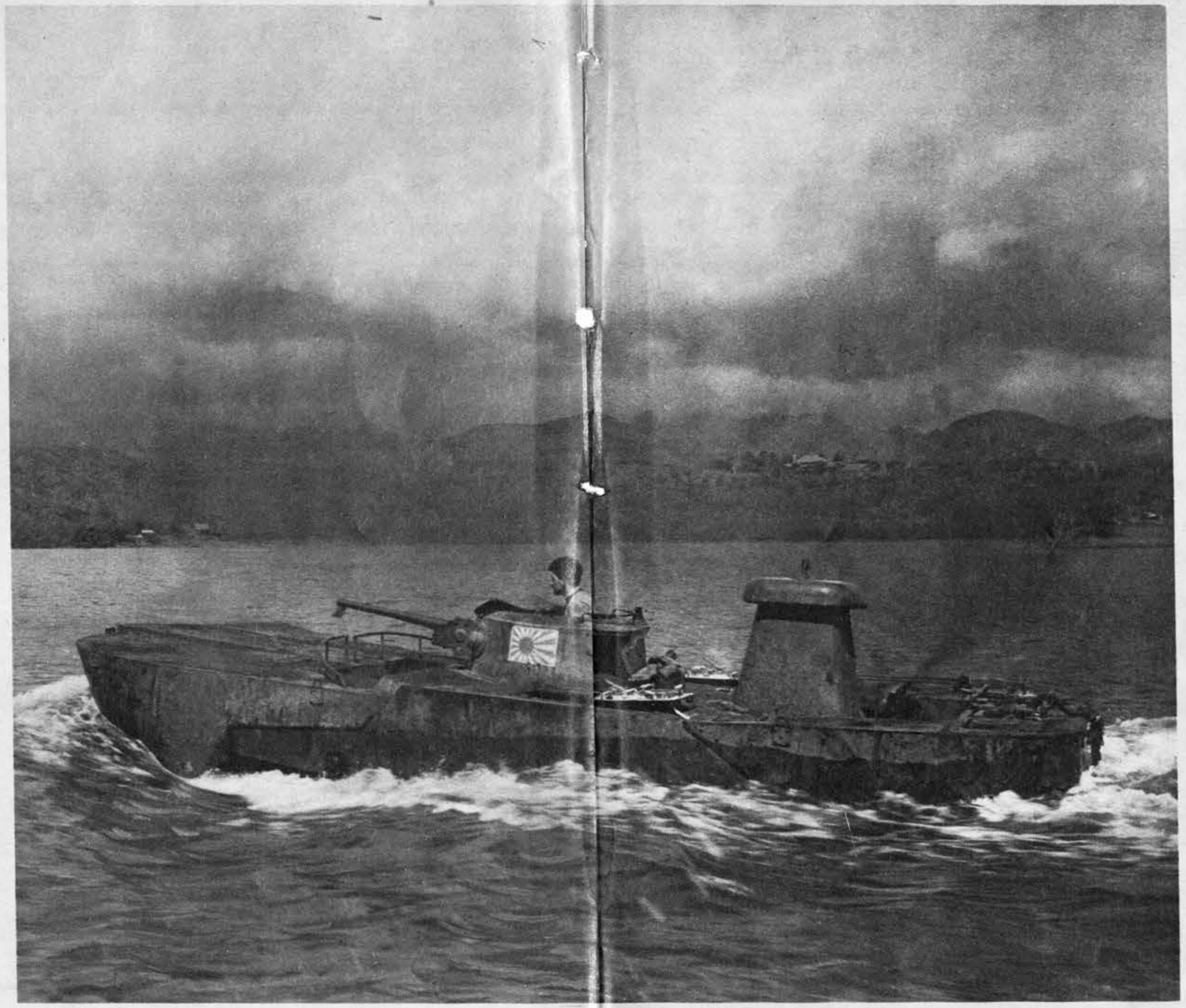
Approaching the beach, Japanese amphibious tank has shed bow pontoon (*right*). Riding low, the vehicle shows a flat turret and blocky hull.



Rear pontoon is released as the tank moves closer to shore. Turret armament consists of a 37-mm. cannon and coaxially mounted 7.7-mm. MG.



Hitting land, the Japanese amphibian looks low and wide (height, 7 ft., 8 in.; width, 9 ft., 2 in.). Bump on turret is a Japanese soldier's helmet.



U.S. CREW TAKES CAPTURED JAPANESE AMPHIBIOUS TANK ON TRIAL RUN. TOWER ON THE REAR PONTOON DISTINGUISHES THIS MODIFIED VERSION

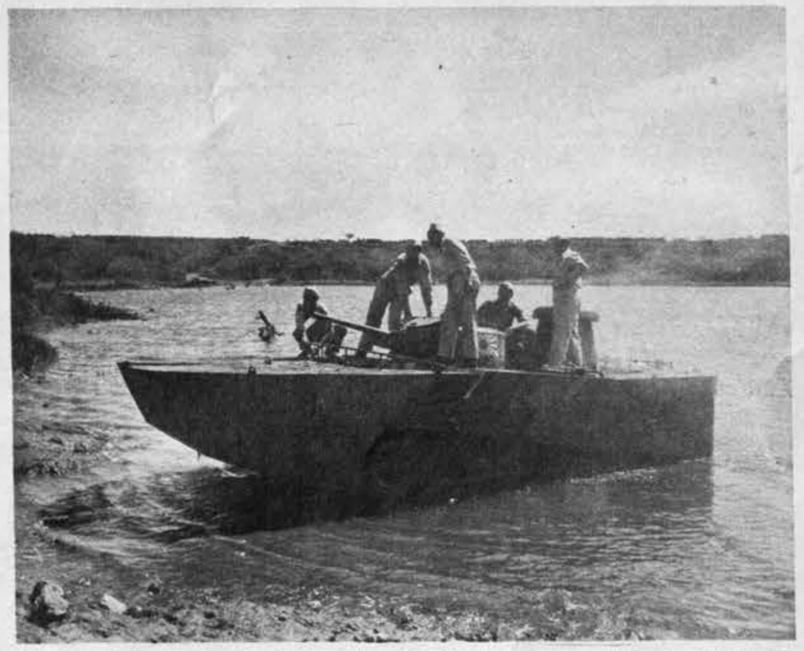
JAP INVADERS USE AMPHIBIOUS TANK

On the night of Nov. 7 the Japanese showed they could still mount an amphibious attack of sorts by recapturing the tiny Palau island of Ngeregong, held by a minute U.S.M.C. patrol. Already experienced in modern amphibious warfare through their landings on the Malay Peninsula and in the Philippines early in the war, they are still improving their equipment. An example of their current efforts is the amphibious tank shown on these pages.

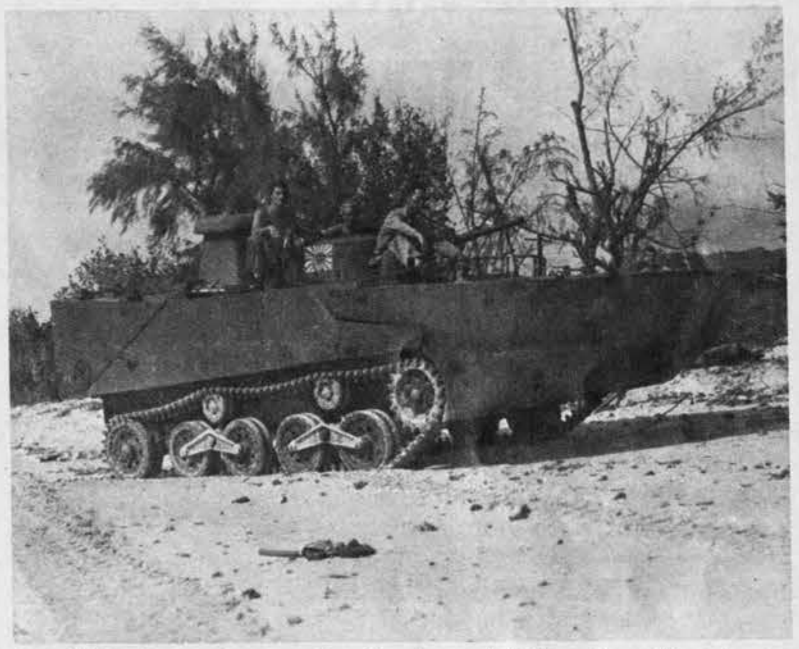
In the *Journal* for August this ingenious weapon was pictured both from the air and in a close-up view on dry land with pontoons dismantled. Additional photographs now available show it in various stages of its amphibious career. In one series (*left*) the vehicle is in Japanese hands. In the other (*above and right*) a slightly modified version, captured intact, is being tested by U.S. forces. Taking the design of its suspension from the Model 2597 Japanese tankette, the amphibian is the enemy counterpart of the U. S. LVT(A)(1) shown on page 29.

In appearance and technical details, however, the Japanese landing vehicle is very different from the U.S. LVT. Our vehicle has pontoons inside the hull to keep it afloat and is driven through the water by small buckets, called grousers, attached to the tracks. The Japanese amphibian, on the other hand, has detachable pontoons fore and aft and uses rudders and propellers for its run into shore. The pontoons, held on by pincer clamps, are released by turning a hand wheel inside the hull.

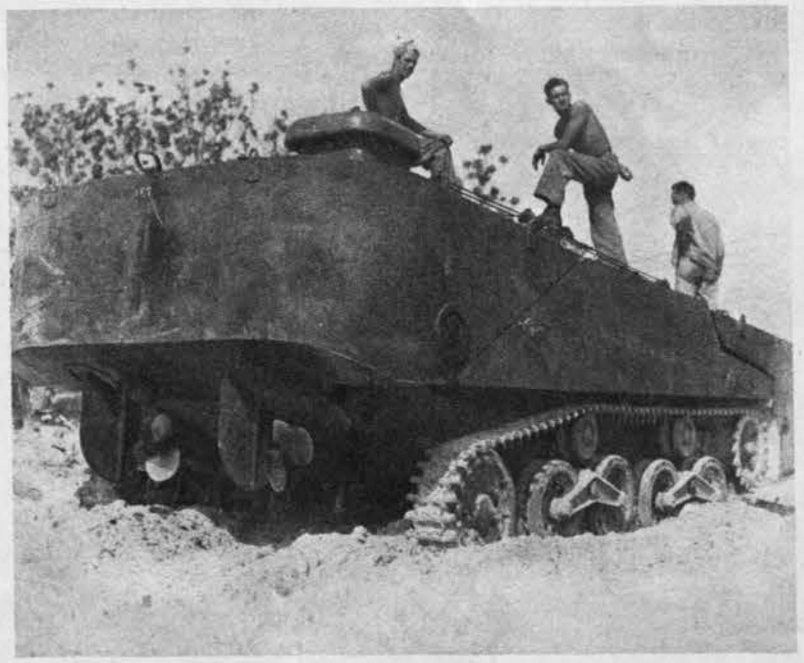
With its pontoons discarded, the vehicle becomes a low, compact ten-and-a-half-ton tank driven by a six-cylinder air-cooled diesel engine at the rear. Since there is no compartmentation in the hull, the engine is easily accessible to the crew. The main armament is a 37-mm. cannon supplemented by two 7.7-mm. machine guns, one in the turret and one in the hull. In addition there are seven pistol ports and four vision slits. The armor on the turret sides is slightly over half an inch thick while on the front plate and the hull sides it is somewhat thinner. Though less heavily armored than the LVT(A)(1), the Japanese amphibian has the advantage of a much lower silhouette.



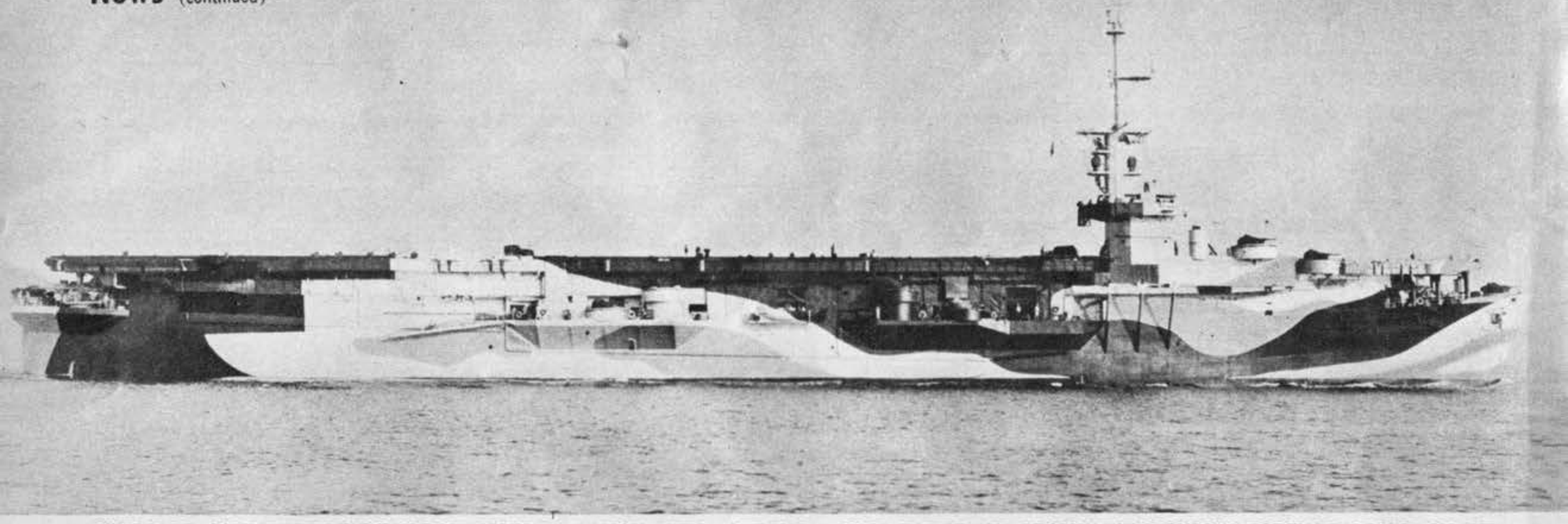
Captured Japanese vehicle takes U. S. observers up beach. With its pontoons still attached, it looks like a turreted, full-tracked DUKW.



Amphibian's running gear has front sprocket drive, large idler at rear, two return rollers. Four bogie wheels on each side are mounted in pairs.



Rudders and propellers control Jap tank in water. Tower may be an air intake. Note side wall's straight lines in section between the pontoons.



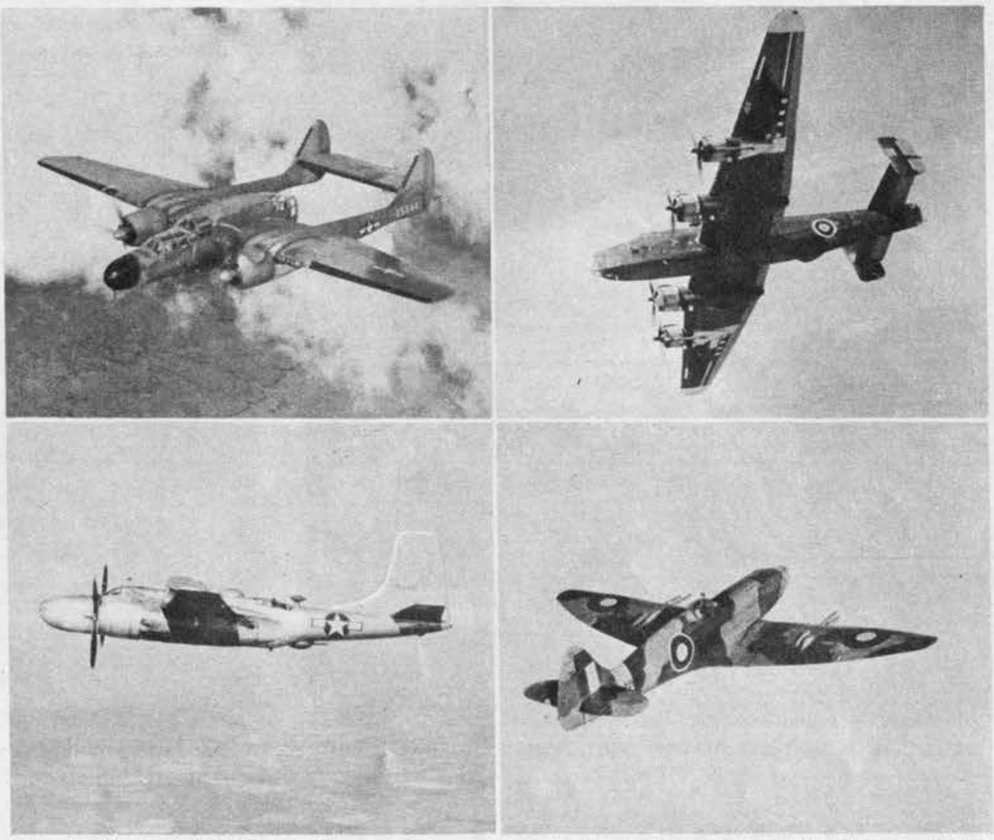
NEW U.S.S. COMMENCEMENT BAY RESEMBLES SANGAMON CVE'S. SHE HAS A SOLID TOWER AND PROMINENT SPONSONS FORWARD OF THE ISLAND

ALLIED AIRPLANE & WARSHIP NEWS

Augmenting the U. S. Navy's escort carrier fleet is the new Commencement Bay Class (*above*). Resembling the Sangamon Class, the new ships have a solid mast tower in place of trestle mast and additional gun sponsons along the foredeck and hull sides.

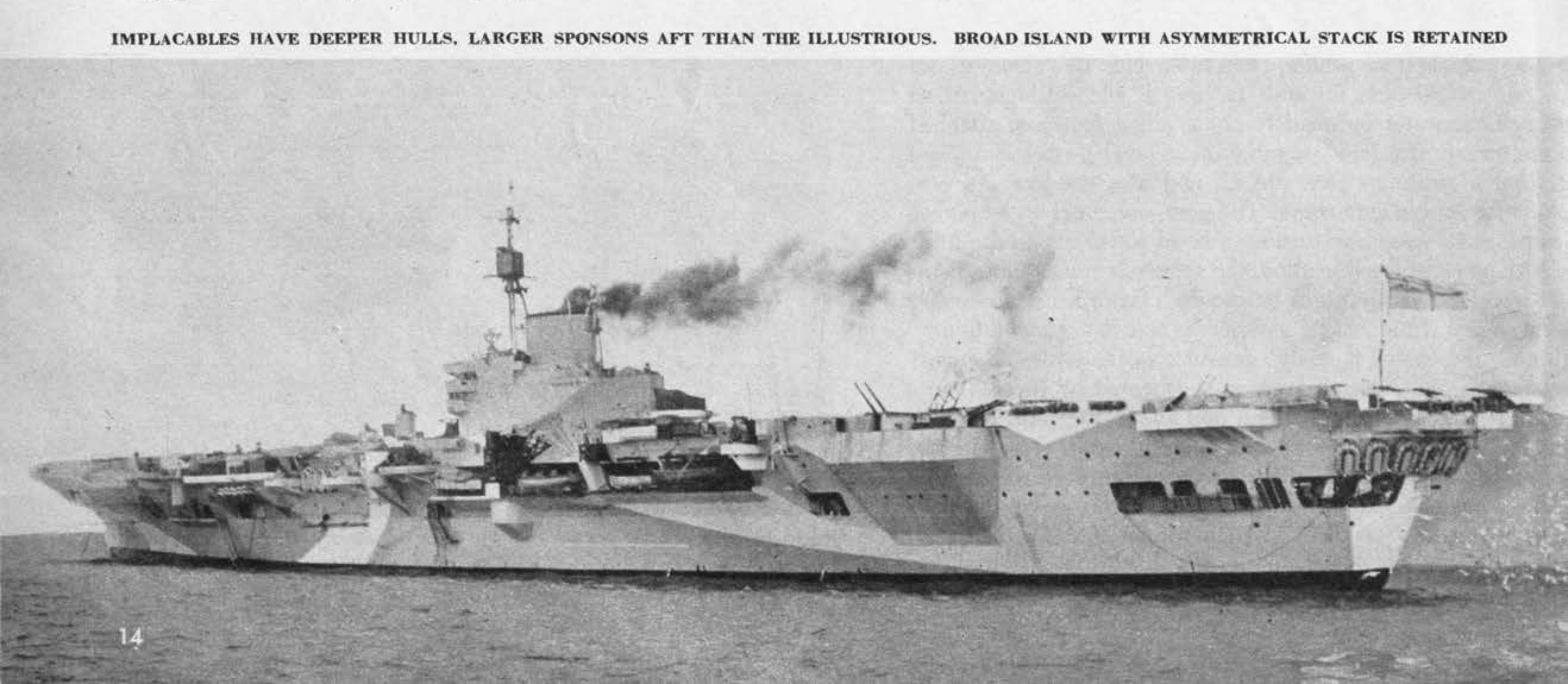
Details of Britain's Implacable Class CV's are now available. Improvements on the Illustrious Class, the Implacables are longer, have greater freeboard and carry a stump tripod mainmast.

The group at right shows modifications on two U. S. and two British warplanes. The P-61 may be seen in limited numbers without top turret; the latest Invader, A-26C, has a modified bubble canopy. Rounded wingtips and radial engines mark the Halifax VII, while the Spitfire 21 has raked wingtips and all four guns protruding.

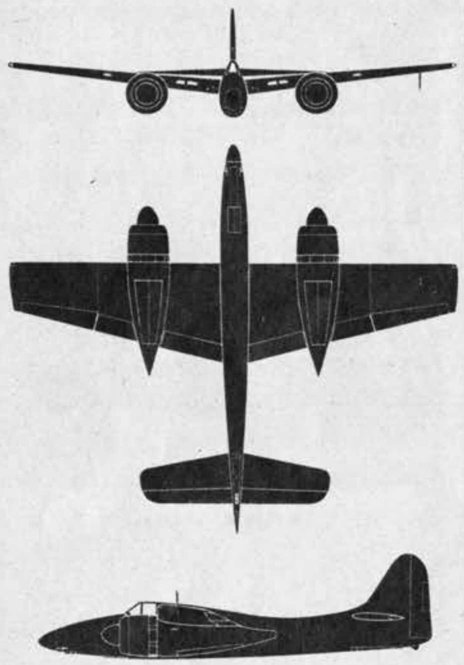


Four U.S. and British airplanes shown here have recently been modified. Left to right in the top row are the P-61 and Halifax VII; at bottom, A-26C and Spitfire 21.

IMPLACABLES HAVE DEEPER HULLS, LARGER SPONSONS AFT THAN THE ILLUSTRIOUS. BROAD ISLAND WITH ASYMMETRICAL STACK IS RETAINED

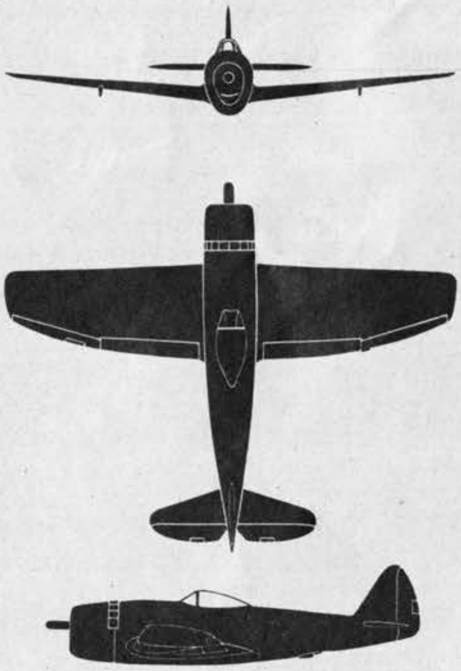


NEW AND REVISED AIRPLANE SILHOUETTES



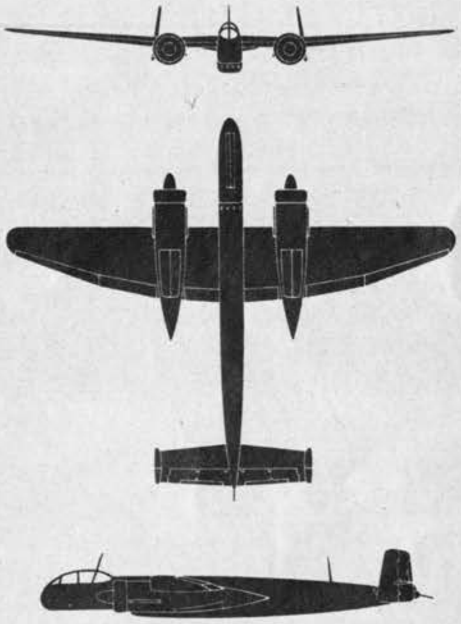
F7F-2

SPAN 51 FT. 6 IN. LENGTH 45 FT. 4 IN.
NEW FIGHTER FOR NAVY AND MARINES



P-47N

SPAN 42 FT. 6 IN. LENGTH 36 FT. 4 IN.
USAAF FIGHTER HAS A REDESIGNED WING

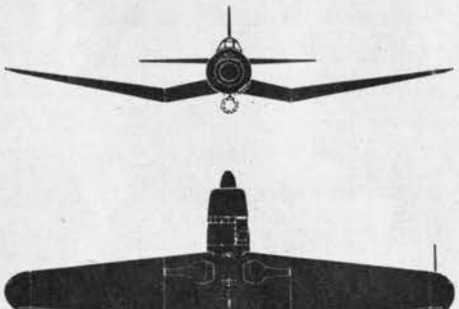


HE-219

SPAN 60 FT. 8 IN. LENGTH 51 FT.
CORRECTED OUTLINES OF NAZI FIGHTER

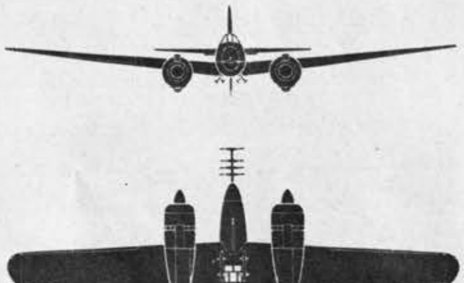
The Navy's new Grumman fighter is the powerful twin-engine two-seater Tigercat (*see pages 17, 22, 23*). On the N model of the Army's P-47 Thunderbolt a clipped wing is the important recognitional change.

More accurate information obtained on the He-219, the German day and night fighter last shown in the *Journal* for September, reveals the plane's deeper fuselage and the angular outlines of the fins and rudders.



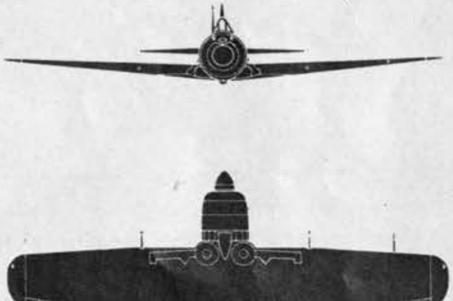
GRACE 11

SPAN 47 FT. 3 IN. LENGTH 37 FT. 7 IN.
NEW JAP TORPEDO BOMBER (TENTATIVE)



IRVING 11

SPAN 55 FT. 9 IN. LENGTH 39 FT. 11 IN.
JAP NIGHTFIGHTER'S RADAR (PROVISIONAL)

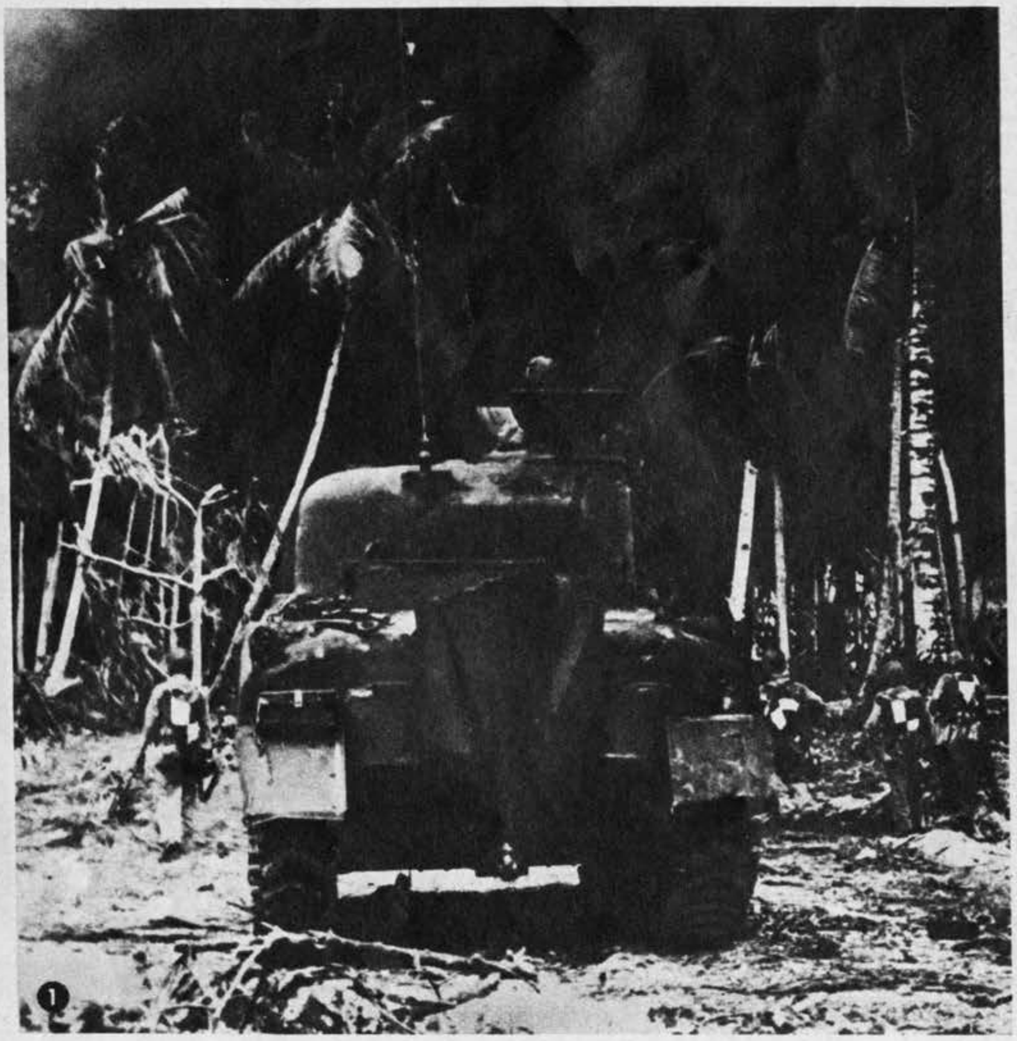


FRANK 1

SPAN 36 FT. 11 IN. LENGTH 32 FT. 4 IN.
NEW JAP ARMY FIGHTER (TENTATIVE)

Recent additions to the Japanese air forces are Grace 11 and Frank 1. From fragmentary information, preliminary silhouettes have been prepared which should be considered highly provisional until further evidence on recognition features is available. Grace has an inverted gull wing and slender fuselage; Frank, blunt wingtips and squared-off rudder. The revision on Irving presents radar details and a modified greenhouse.

QUIZ NO. 2: VEHICLES ON ALL FRONTS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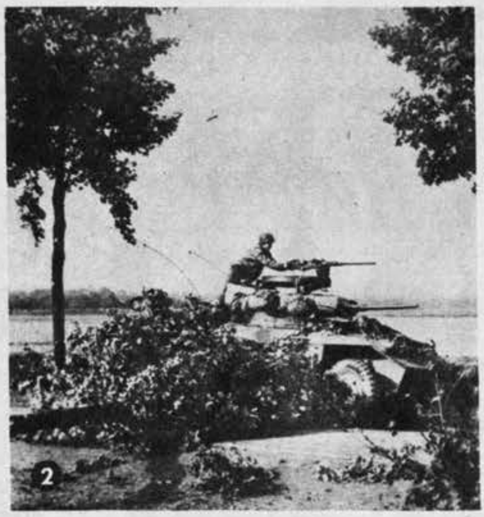
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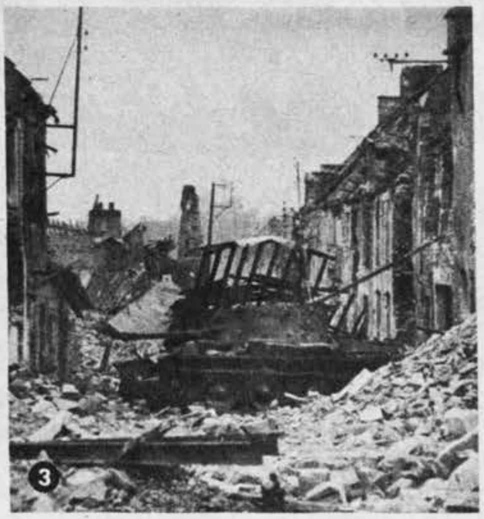
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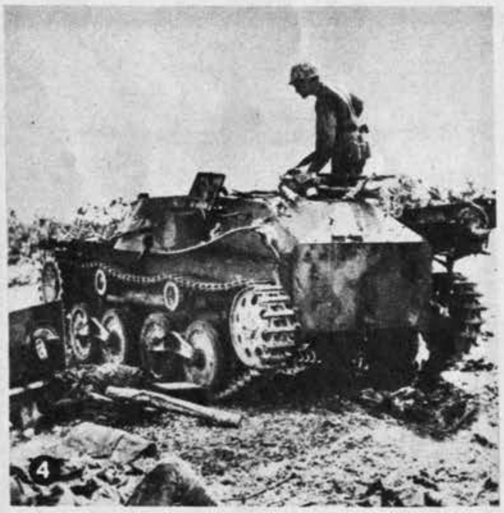
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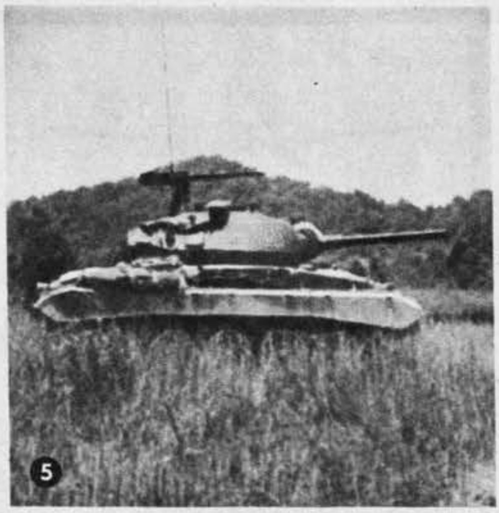
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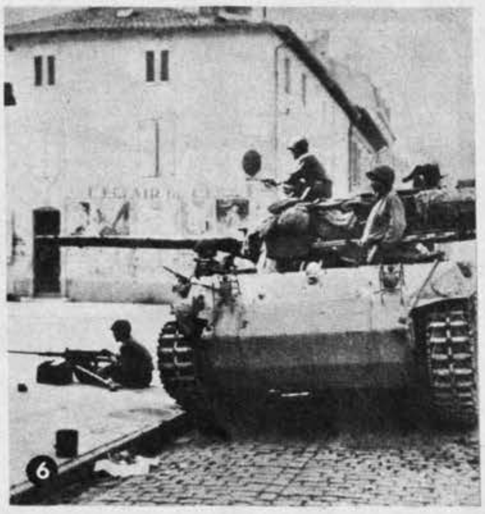
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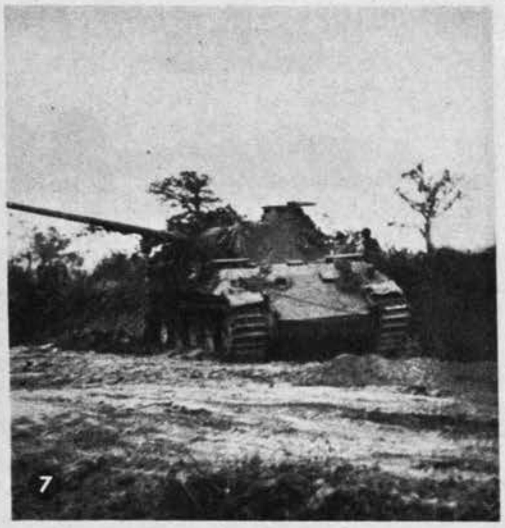
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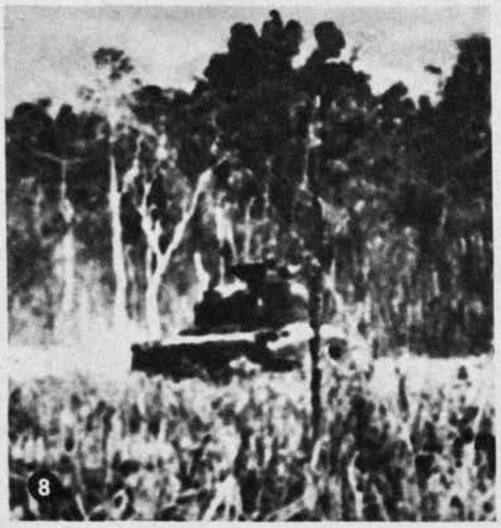
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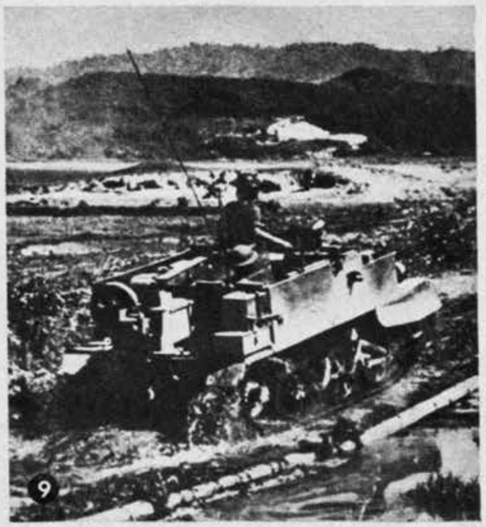
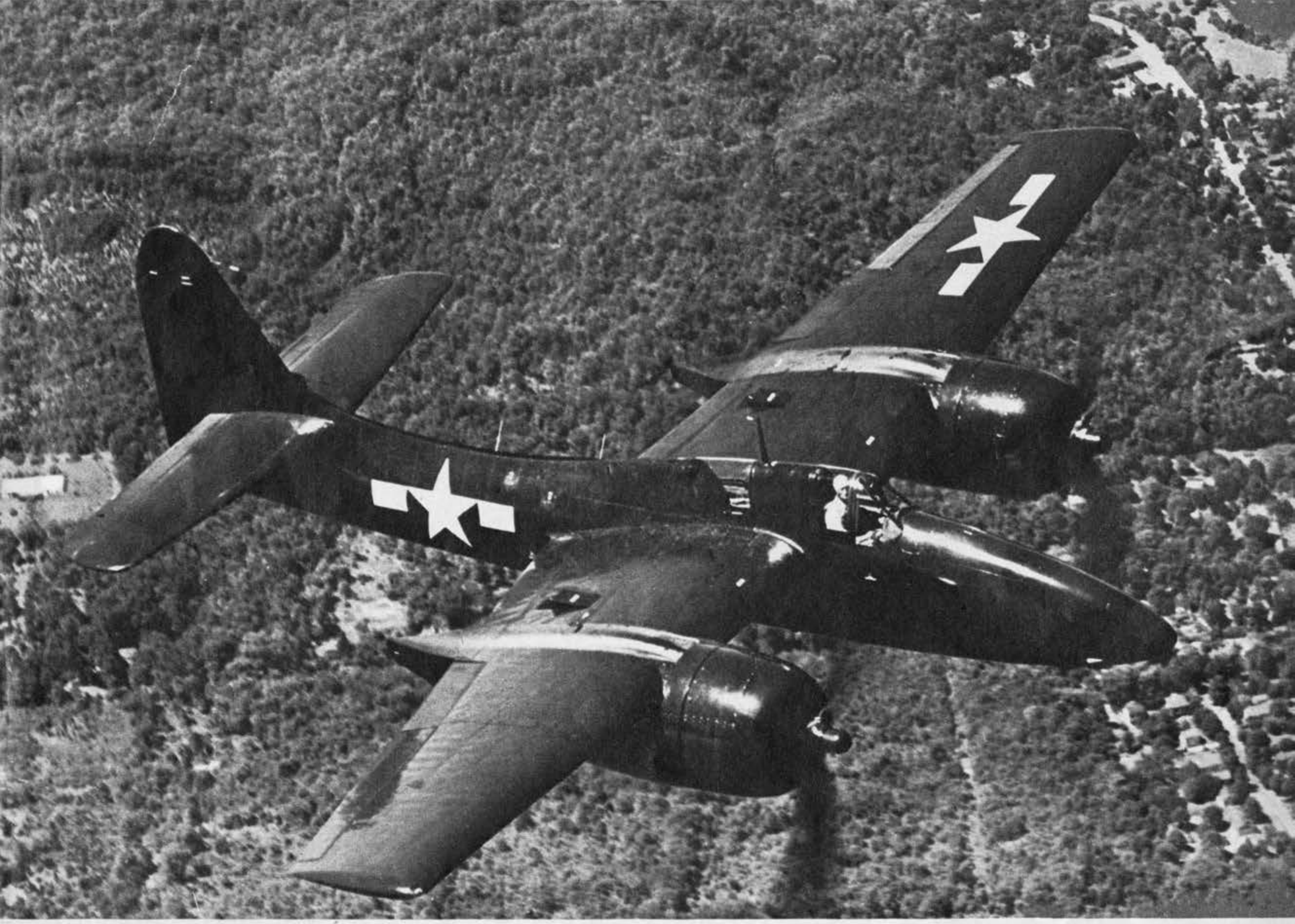

9

For answers see p. 48



SLEEK F7F IS THE U. S. NAVY'S LATEST GRUMMAN FIGHTER. A LONG-NOSED TWO-SEATER, IT WILL FLY FROM LAND BASES FOR THE MARINES

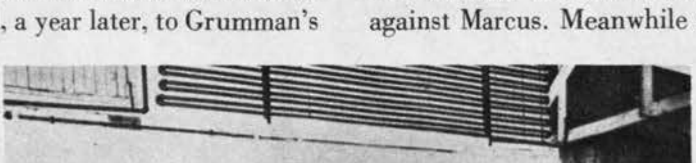
GRUMMAN

Twelve years of specialized production have laid foundation of Navy's airpower

Since Dec. 29, 1931 the development of U. S. naval planes has to a great extent been the development of the Grumman Aircraft Engineering Corp. On that date Grumman delivered the XFF-1 to the Bureau of Aeronautics. It was accepted by the Navy, and 27 FF-1's were ordered for delivery in 1932. Since that time many of the Navy's amphibians, its best torpedo bomber and many of its carrier-based fighters have come from Chief Engineer Bill Schwendler's drawing board.

Grumman's first aeronautical product was not an airplane. It was an amphibian float (*below*) with retractable wheels made for the U. S. Navy in 1930. This led, a year later, to Grumman's production of the world's first military aircraft with a retractable landing gear, the FF-1 referred to above. It was a two-seater biplane with a top speed of 208 m.p.h.

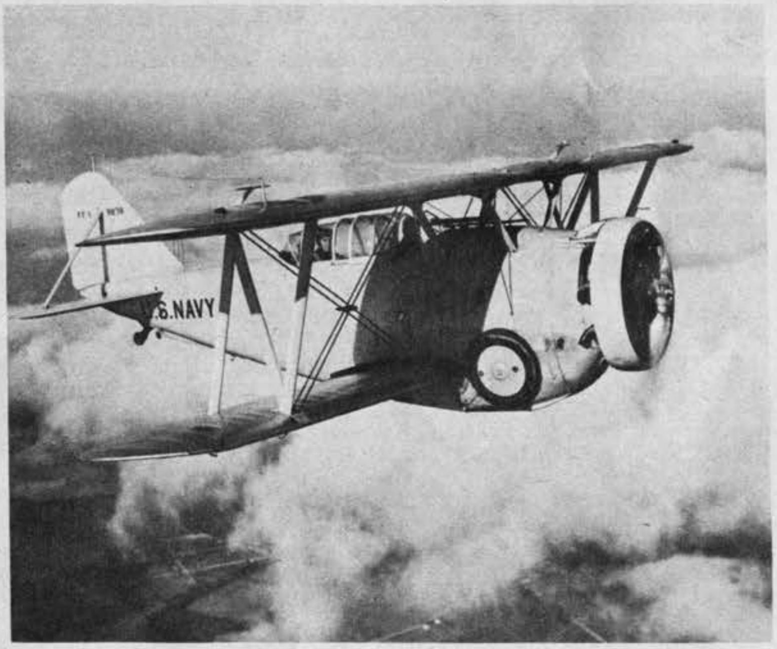
Following the FF-1 was the F2F single-seater whose short, round airframe set the style for subsequent Grumman fighters. More powerful engines and better streamlining led to the last biplane fighter series, the F3F's, which had 850-hp. engines and a top speed of 270 m.p.h.



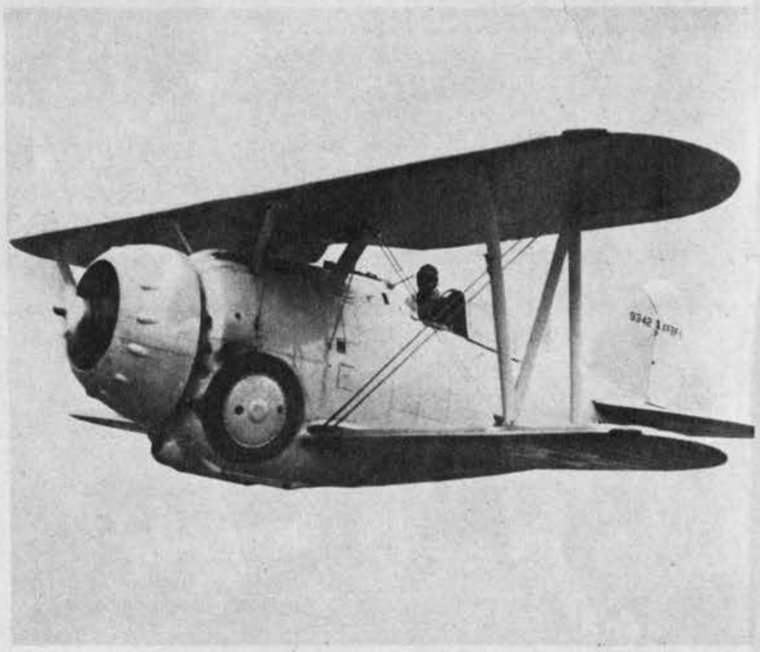
Model "A" float gave Grumman its first U. S. Navy contract and provided the basis for naval aviation's greatest fighter line.

The angular lines which are now typical of Grumman appeared in the F4F, the Navy's first successful monoplane fighter. This was the great Wildcat which saved Guadalcanal and did almost all of the Navy's ship-based fighting from December 1941 until September 1943. While it did not have the speed or maneuverability of the Japanese fighter planes, it was rugged and could absorb terrific punishment. Its successor as the fleet's fighter, the F6F, was tailor-made to combat specifications. The result was one of the best carrier-based fighters in the world. The Hellcats went into action in September 1943 in a strike against Marcus. Meanwhile another Grumman, the TBF, gave the Navy a fine torpedo plane, horizontal and glide bomber. It has been standard since the Battle of Midway in June 1942.

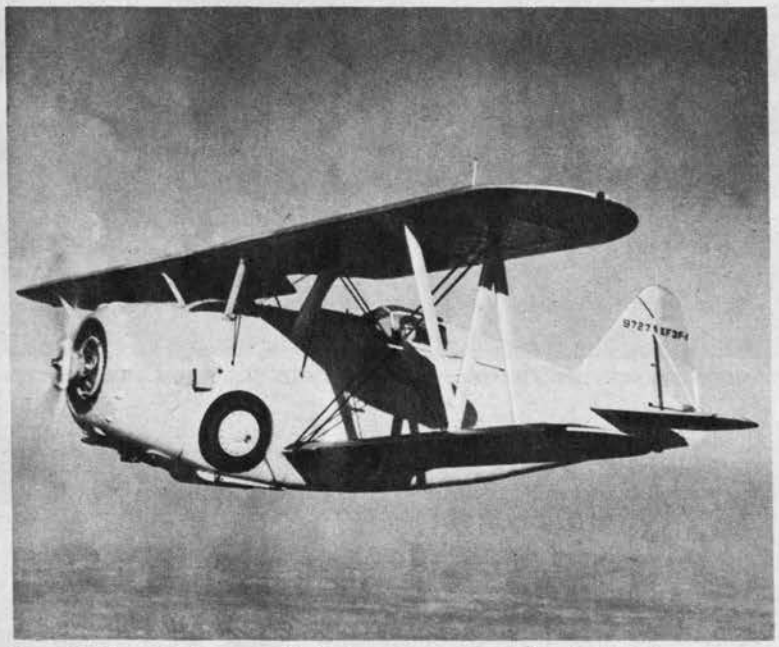
In 1940 Grumman tried out a twin-engine fighter, the XF5F which, though very fast, did not meet other Navy needs. However, a recent Navy request led to development of another twin-engine type, the F7F Tigercat. It is not typically Grumman in appearance. But in all-around effectiveness it should equal the fine records of Grumman's battle-tested planes.



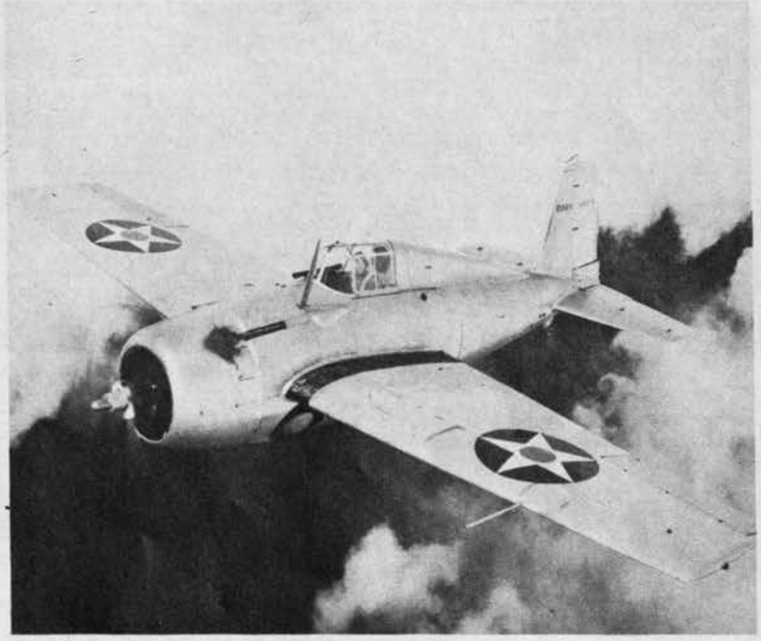
First Grumman fighter accepted by Navy was the FF-1. Built in 1932, this two-seater had a 600-hp. radial engine, a top speed of 208 m.p.h.



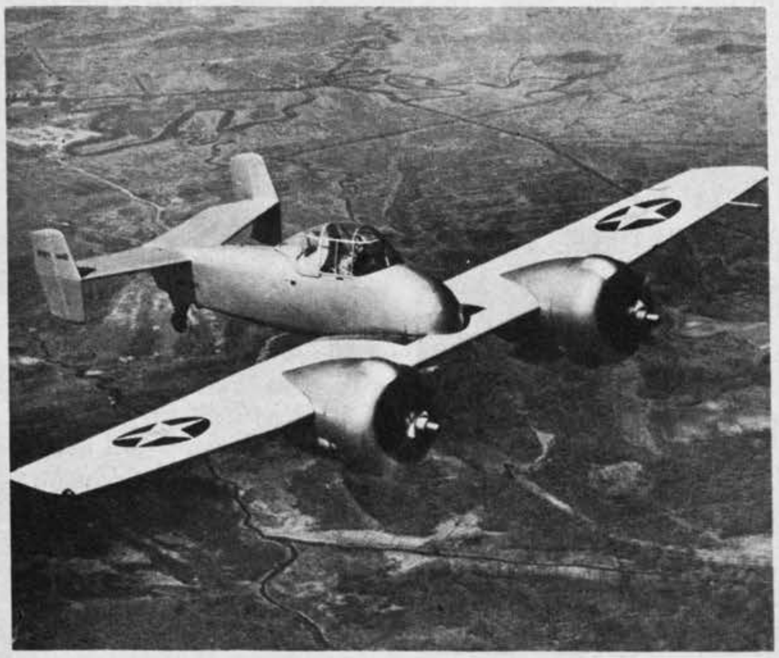
Smaller and tubbier than the FF-1, the XF2F-1 was Grumman's first single-seater. Production model, delivered in 1936, made 237 m.p.h.



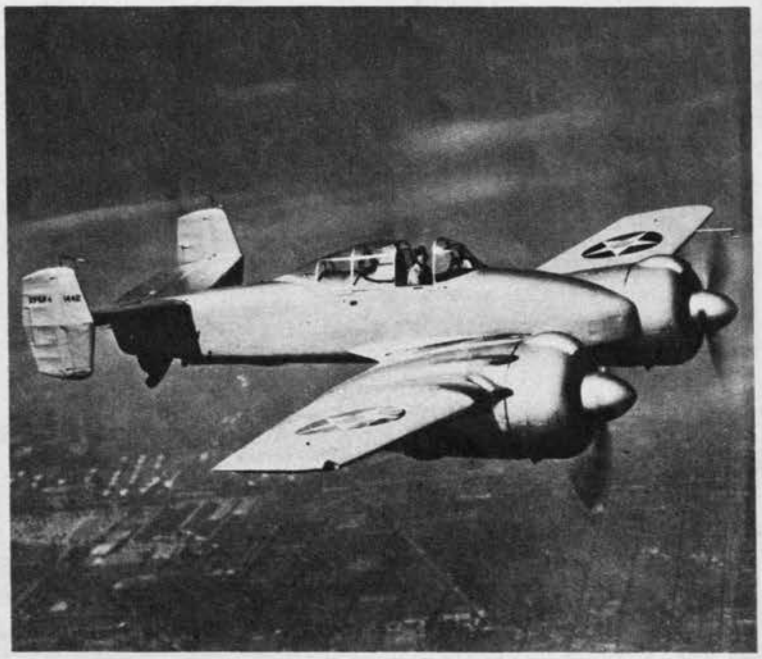
Last biplane fighters built by Grumman were the F3F's. More powerful engines and cleaned-up fuselage achieved a 270-m.p.h. top speed.



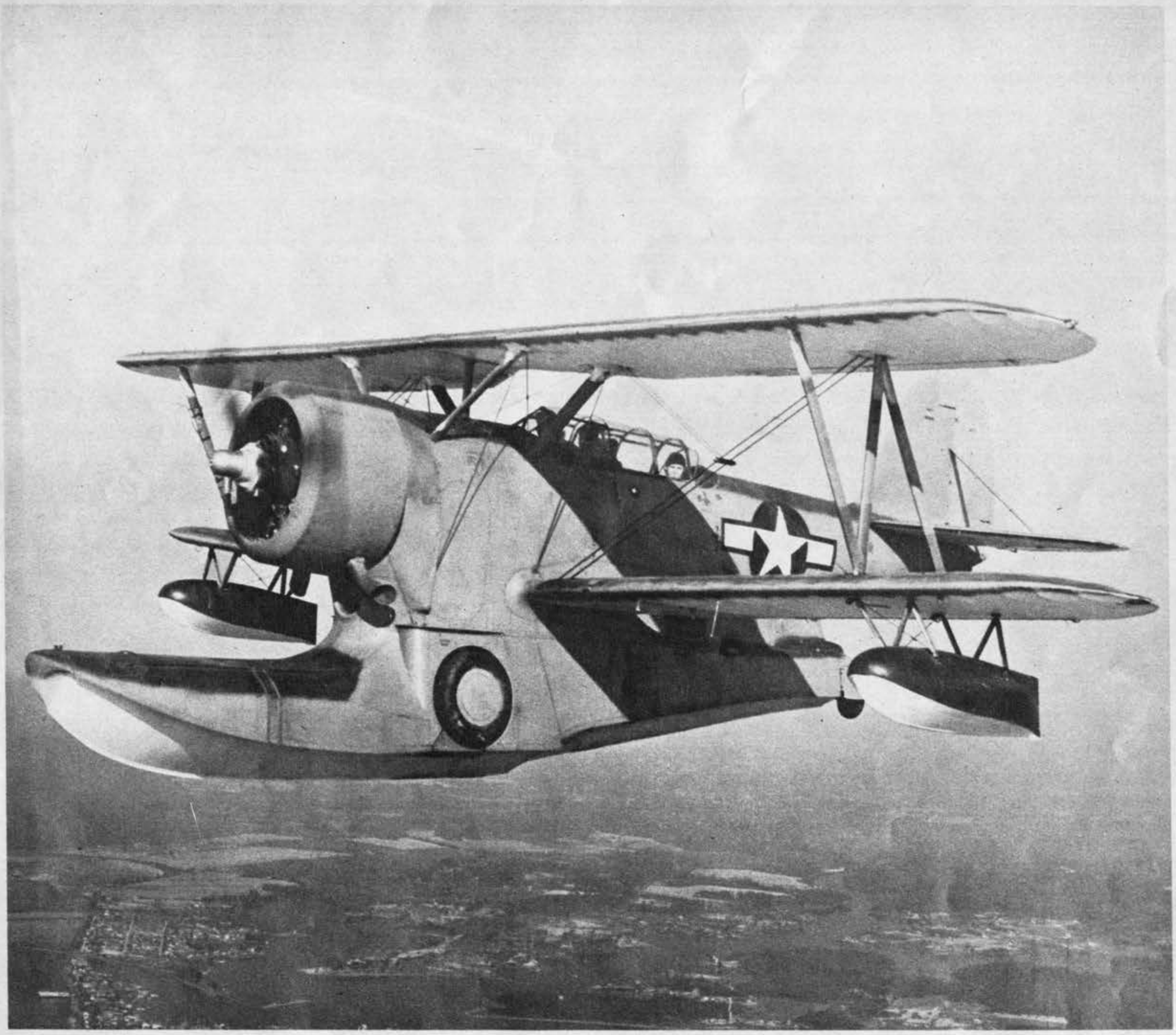
XF4F-3 was Grumman's third monoplane fighter design, the first to be produced. This was Navy's only shipboard fighter in December 1941.



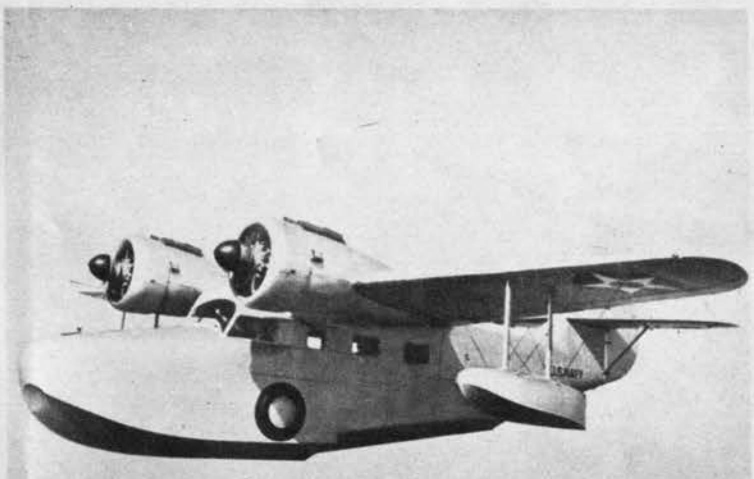
Spectacular twin-engine fighter was the XF5F-1. Known as the Skyrocket, in 1940 it was the fastest military plane, made over 350 m.p.h.



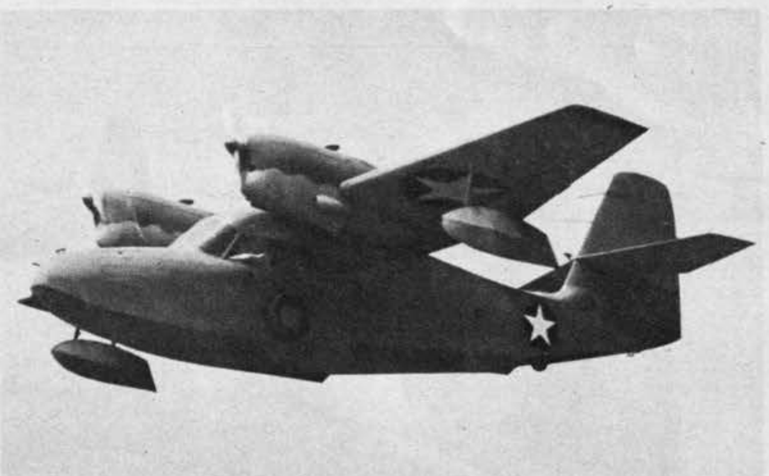
Long-nose Skyrocket foreshadowed F7F in Grumman family. Reluctance to accept twin-engine carrier types stopped production of F5F.



The Duck, used as a scout, rescue plane and target tow by the Navy, was first built in 1934 and is still in service. The current version is the J2F-6. It is now being produced by the Columbia Aircraft Corp. Ducks are genuine amphibians, can take off from land as well as water.



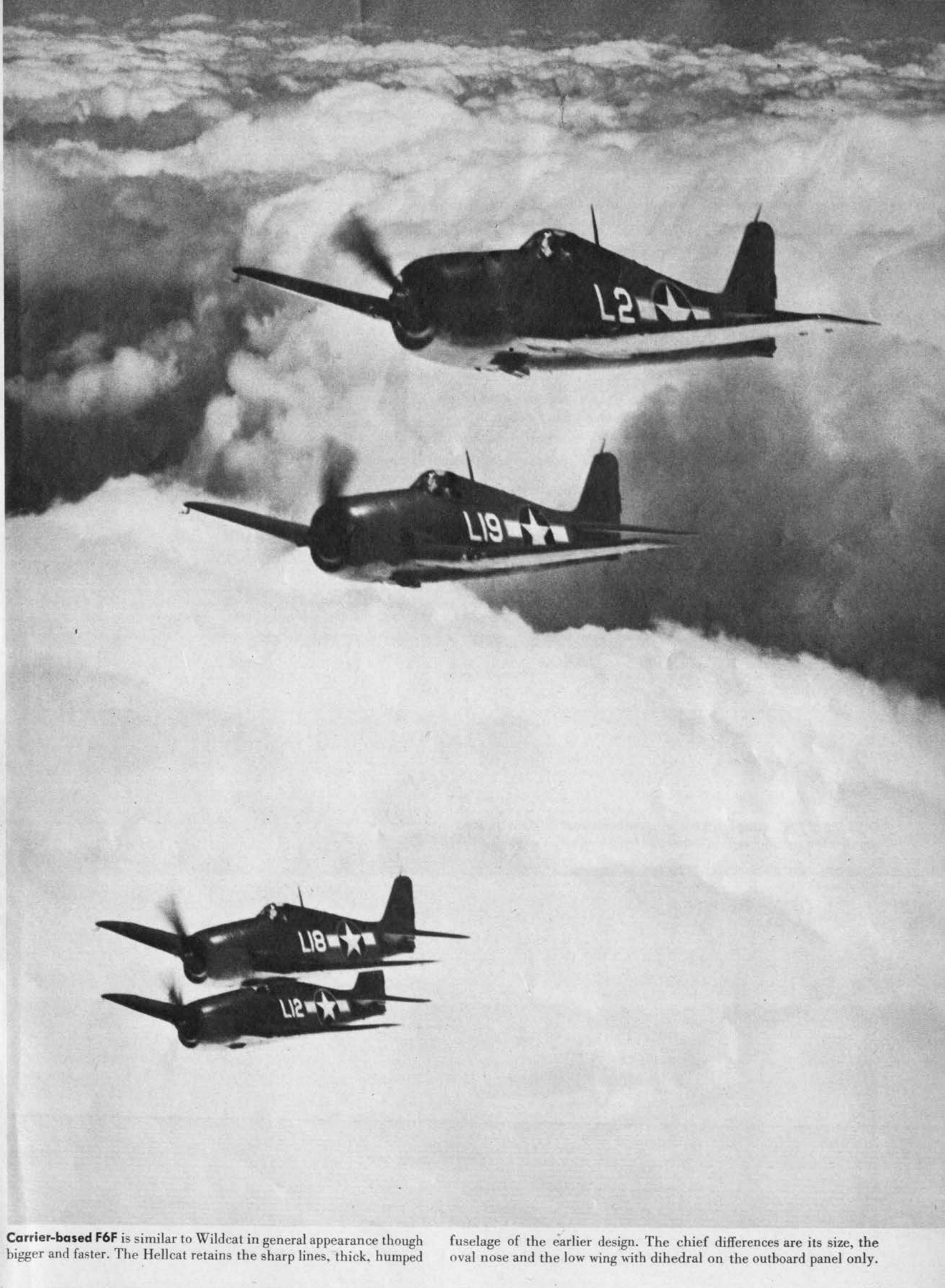
The Goose, JRF, is militarized version of transport designed in 1937. A utility plane for the U.S. Navy, it served the RAF as patrol bomber.



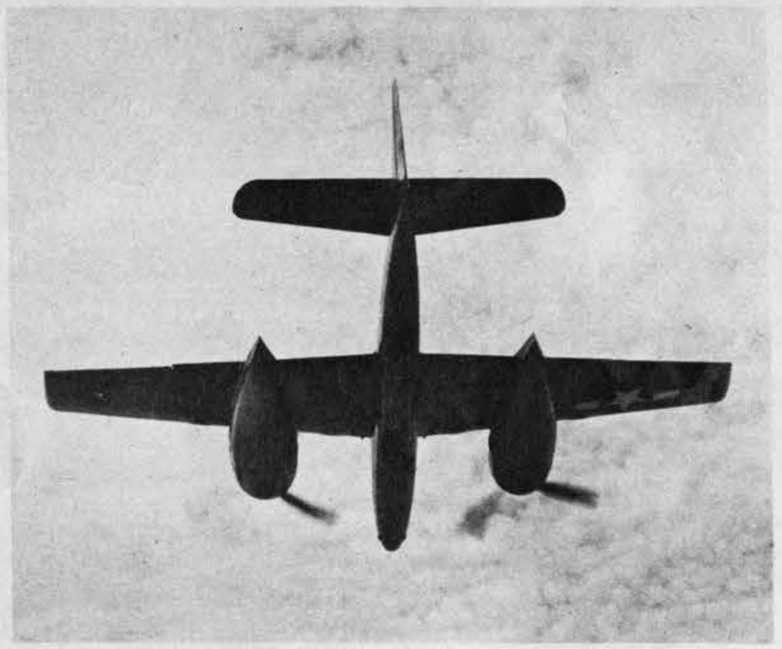
The Widgeon, or J4F, is used chiefly by the U.S. Coast Guard. It has Ranger inline engines, the straight wing and tail typical of Grumman.

Latest Wildcat, the FM-2 manufactured by Eastern Aircraft, is based on Grumman XF4F-8. It is faster, has better climb than original F4F.

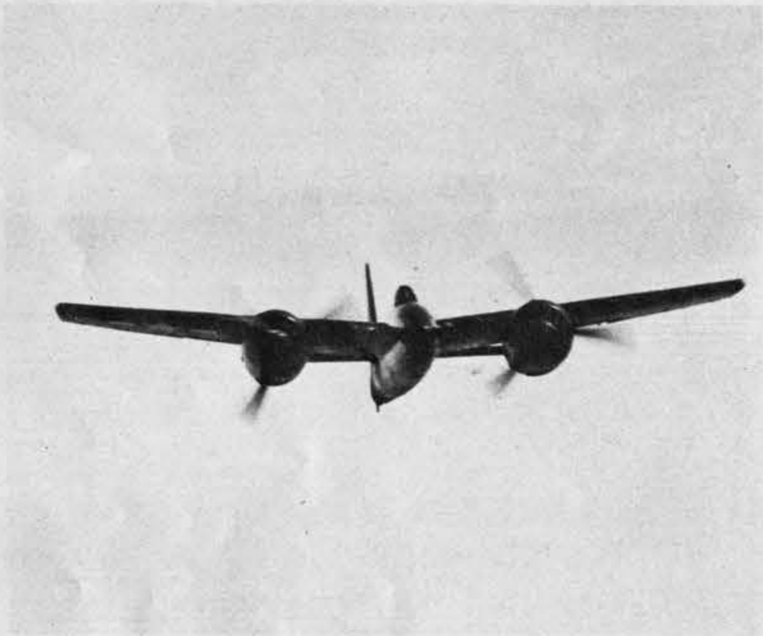
Eastern Aircraft-built TBM's fly over the U.S.S. Hancock. Grumman-designed Avenger is still the world's best carrier-based torpedo plane.



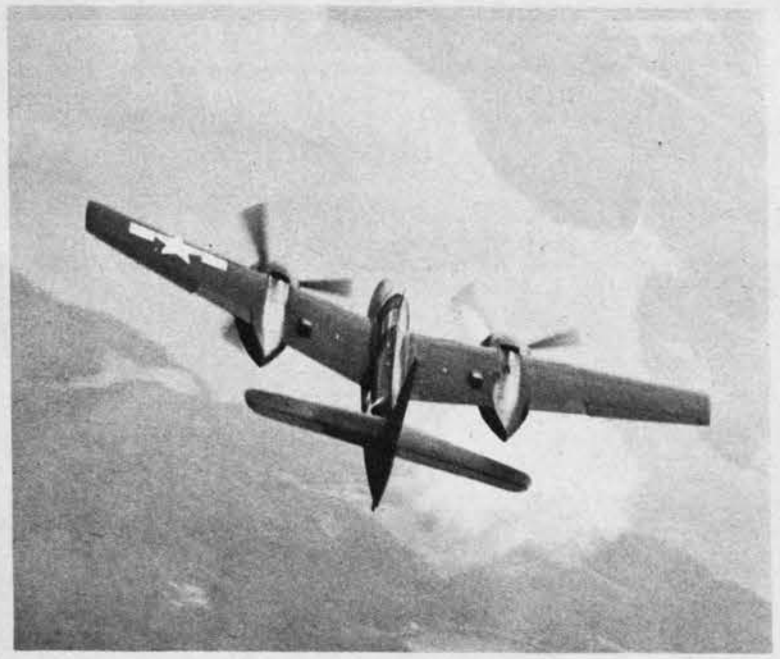
Carrier-based F6F is similar to Wildcat in general appearance though bigger and faster. The Hellcat retains the sharp lines, thick, humped fuselage of the earlier design. The chief differences are its size, the oval nose and the low wing with dihedral on the outboard panel only.



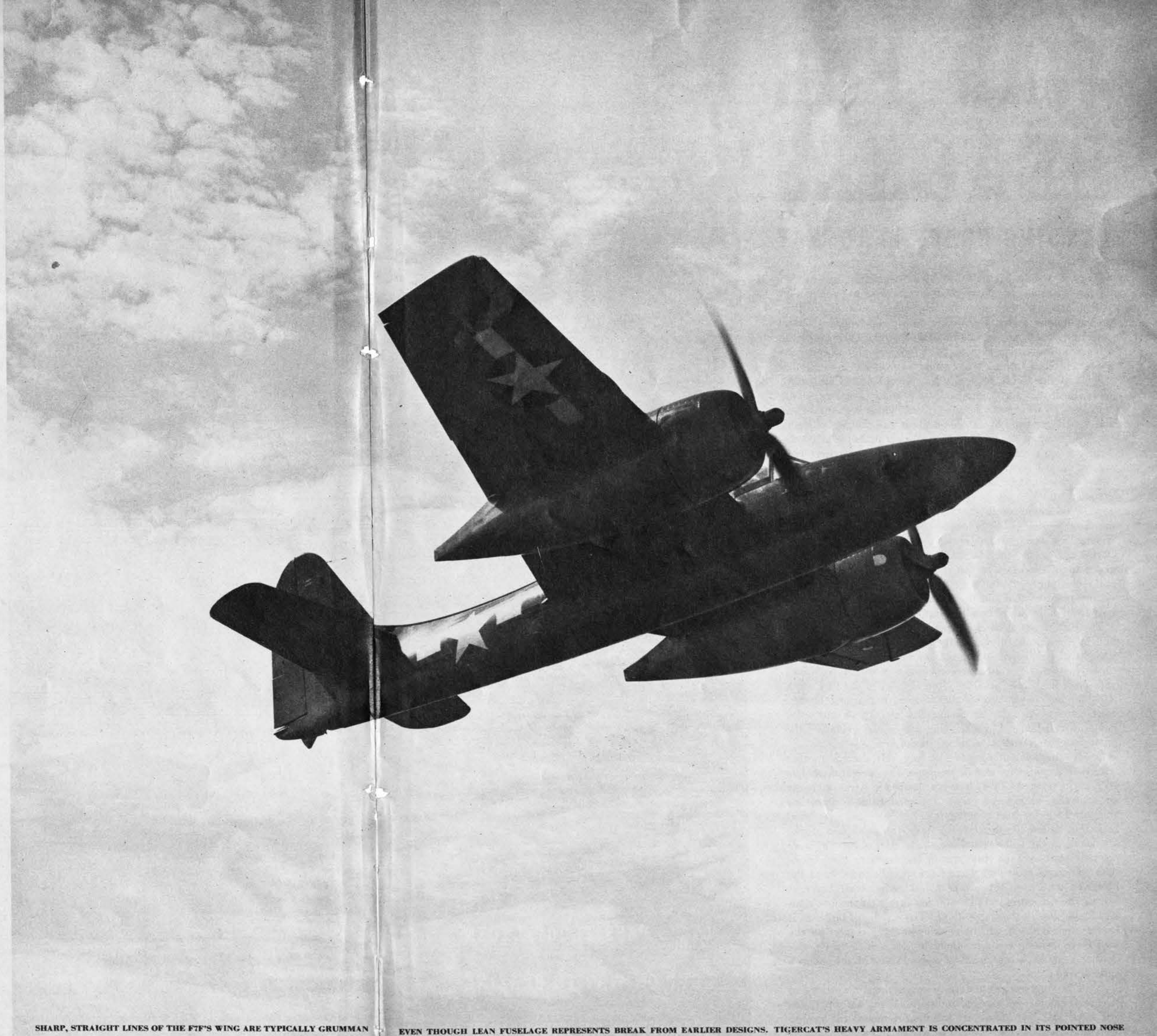
Long and lean, the F7F Tigercat has an extremely thin fuselage. Wingtips are square. Long nacelles protrude well beyond wing's trailing edge.



Dihedral of F7F's wing contrasts with the horizontal tailplane. In head-on view the narrow fuselage is dwarfed by heavy, underslung nacelles.



Tigercat's rudder has rounded top, straight vertical trailing edge. The wing's trailing edge tapers sharply while the leading edge is straight.



SHARP, STRAIGHT LINES OF THE F7F'S WING ARE TYPICALLY GRUMMAN EVEN THOUGH LEAN FUSELAGE REPRESENTS BREAK FROM EARLIER DESIGNS. TIGERCAT'S HEAVY ARMAMENT IS CONCENTRATED IN ITS POINTED NOSE

WAR FOR BEACHES

LANDING CRAFT LEAD WAY

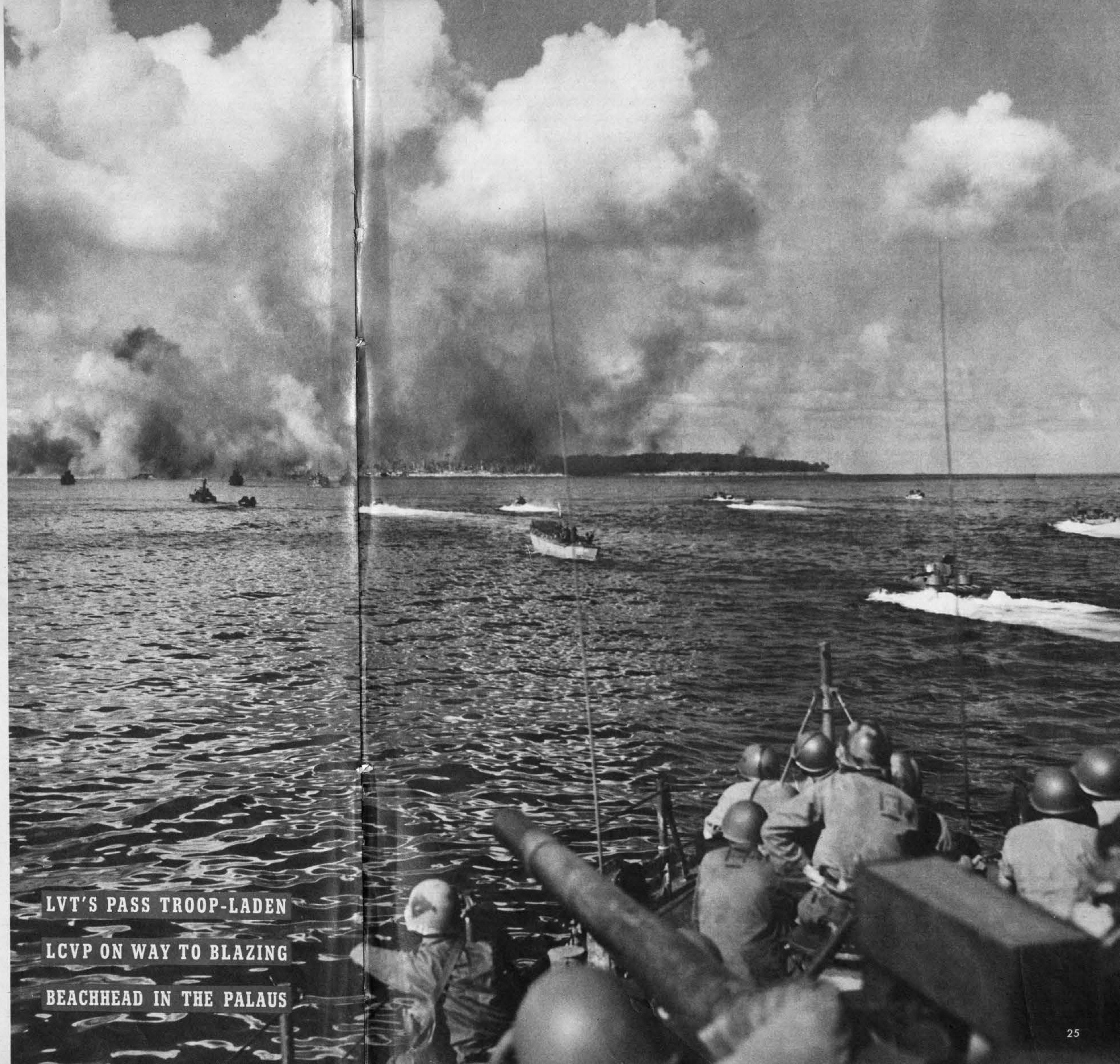
To close with the Axis for a decision, Anglo-American military might has had to take to the water. Getting into position for pay-off drives at the enemy homelands has been, and still is, an amphibious matter. The Mediterranean and English Channel were formidable moats surrounding Fortress Europe. In the Pacific, we have edged up on Japan by amphibious end runs along the New Guinea coast and by using Pacific atolls for steppingstones across the ocean. Now we are in the Philippines, but there are certainly more landings to come before we can deliver body blows to Japan on the ground. Japan is guarded from the Asiatic mainland by Tsushima Strait and the Sea of Japan, while on the east the Pacific is a vast water jump for attackers.

In the war's early days, these stretches of water were considered almost insurmountable barriers. Now they have been converted into highroads of liberation by flotillas of specially designed landing craft. In February 1944 the *Journal* presented a survey of landing craft types and a brief history of amphibious attack in World War II. Since then perhaps the most important chapter has been written along the Norman beaches, while Pacific conquests—the Marshalls, Saipan, Palau, Leyte—have added more successes to the record. Landing operations are still tough and costly, but the efficient technique evolved makes victory more certain and the price less bitter. This stems not only from more skilful handling but from improved matériel.

The basic types of landing craft retain the same hull design, but improvisation, often in the field, has produced many varied and specialized subtypes. The most important trend in these changes is toward increased firepower which, combined with negligible draft, provides close support to the first wave. After air and naval bombardment stops, well-armed landing craft continue to rake hostile beaches and knock out small points of resistance; LCI's bristling with rockets smother the immediate beach with a terrific volume of fire.

Besides these potently gunned landing craft, there is another family of amphibious assault weapons, the powerful, mobile LVT's. The tracked LVT with its boat-shaped hull was originally an unarmed, unarmored carrier, adapted from a peacetime rescue vehicle for hurricane victims. Able to climb over coral reefs that halted all other landing types, the amphtracs proved invaluable in the Gilberts and Marshalls. At Tarawa they were the only craft to reach shore during the first four days. Since then, guns and protection have been steadily added until the LVT(A)'s are a cross between tank and landing craft. Later, at Saipan, the Alligators served for eleven days after the first landing. Riding low in the water, the LVT is a difficult target as it cruises toward the beach, hammering enemy defenses all the way. Once ashore, it is a redoubtable land vehicle in its own right and quickly brings armored power to bear on the enemy's outer strong points.

Allied landing craft were born of geographical necessity and have been modified by combat conditions. As the war progresses in Europe and Asia, new craft and improvements will have to overcome shore defenses created by nature and a sharp enemy.



LVT'S PASS TROOP-LADEN LCVP ON WAY TO BLAZING BEACHHEAD IN THE PALAUS

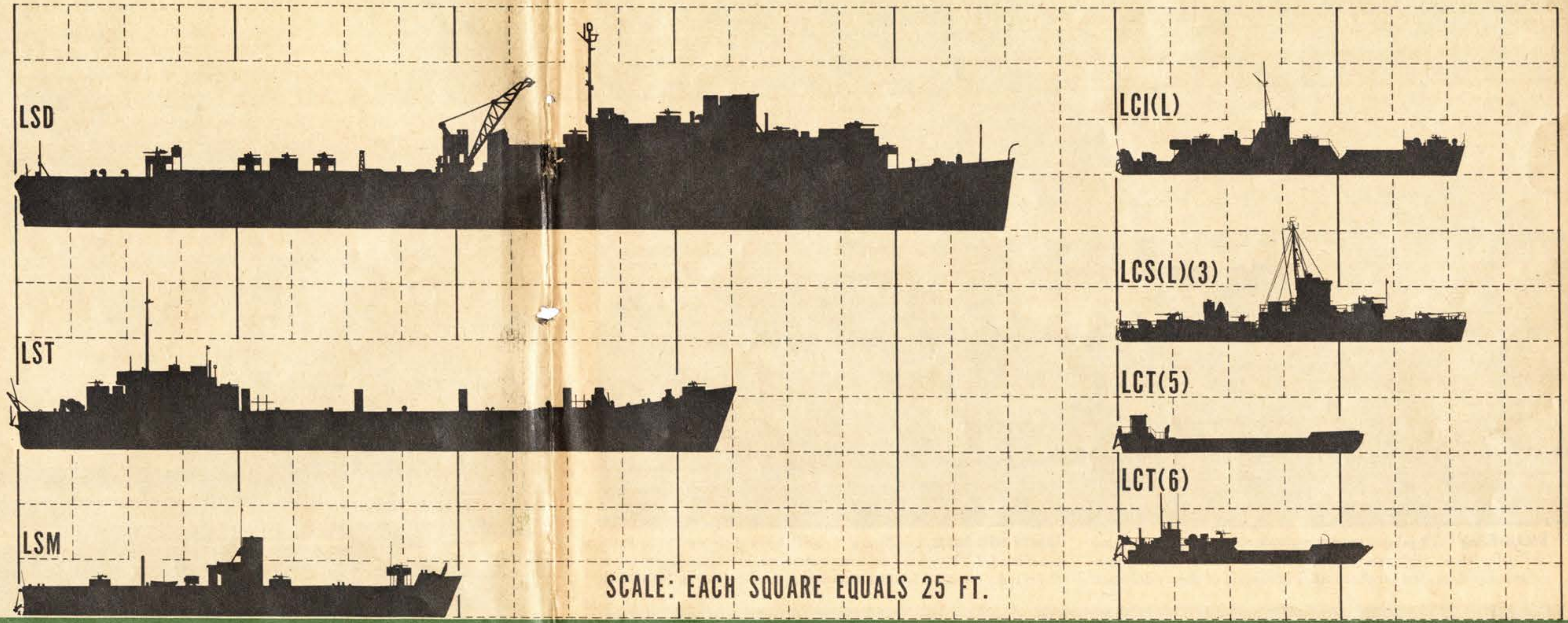
LANDING CRAFT

STANDARD U. S. TYPES

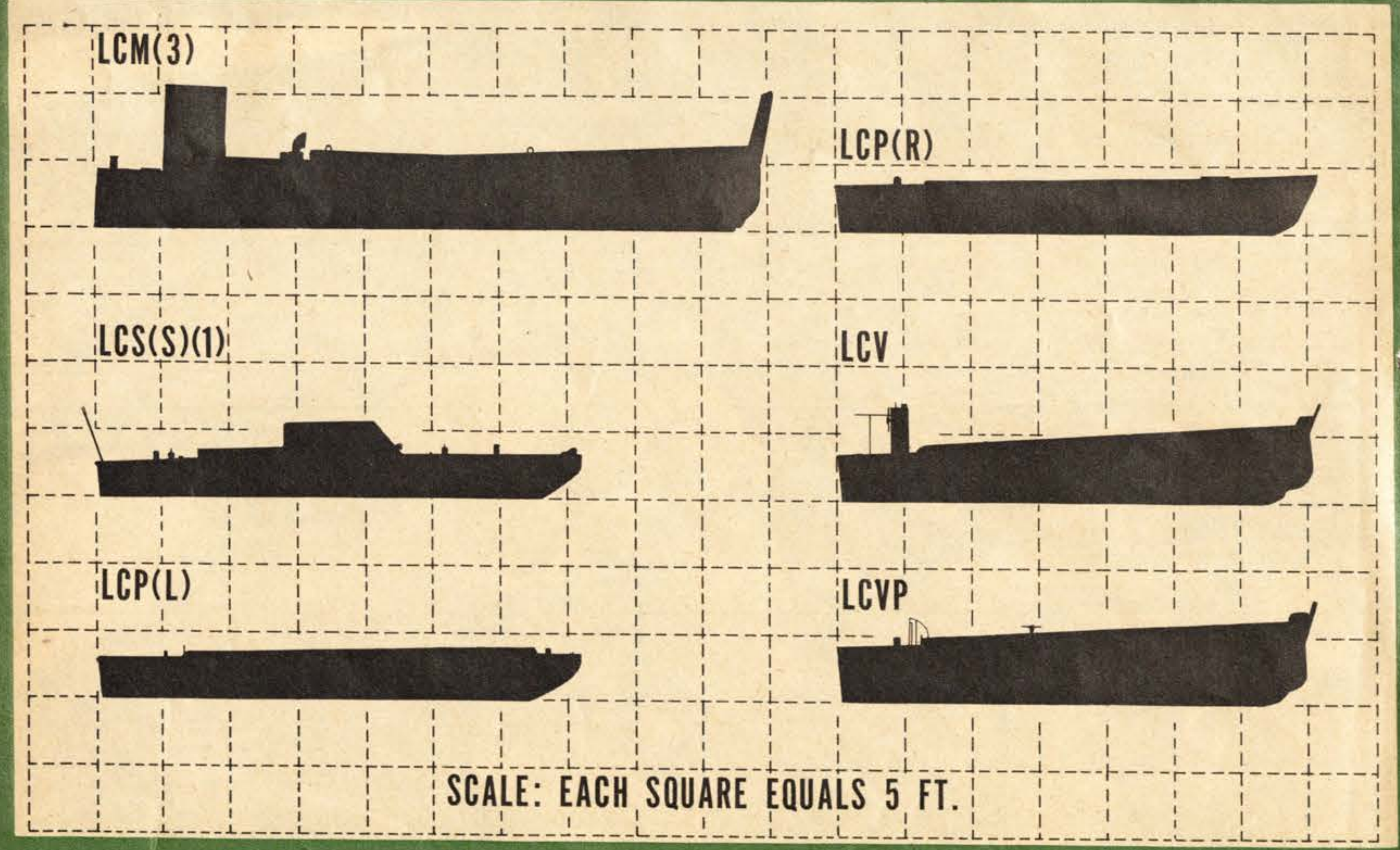
~~RESTRICTED~~

U. S. landing craft are summed up by the 19 important types shown here in beam silhouette. Since landing craft range in size from the LSD, an ocean-going ship 457 feet in length, to the 26-foot amphibious tanks, the silhouettes are divided among three sections, each of which has a different scale. Across the top are Landing Ships and the larger personnel, vehicle and support craft. Below on the left are smaller versions which perform the same functions during the first assault. The group at lower right is made up of amphibious vehicles, mostly the armored and unarmored amphtracs.

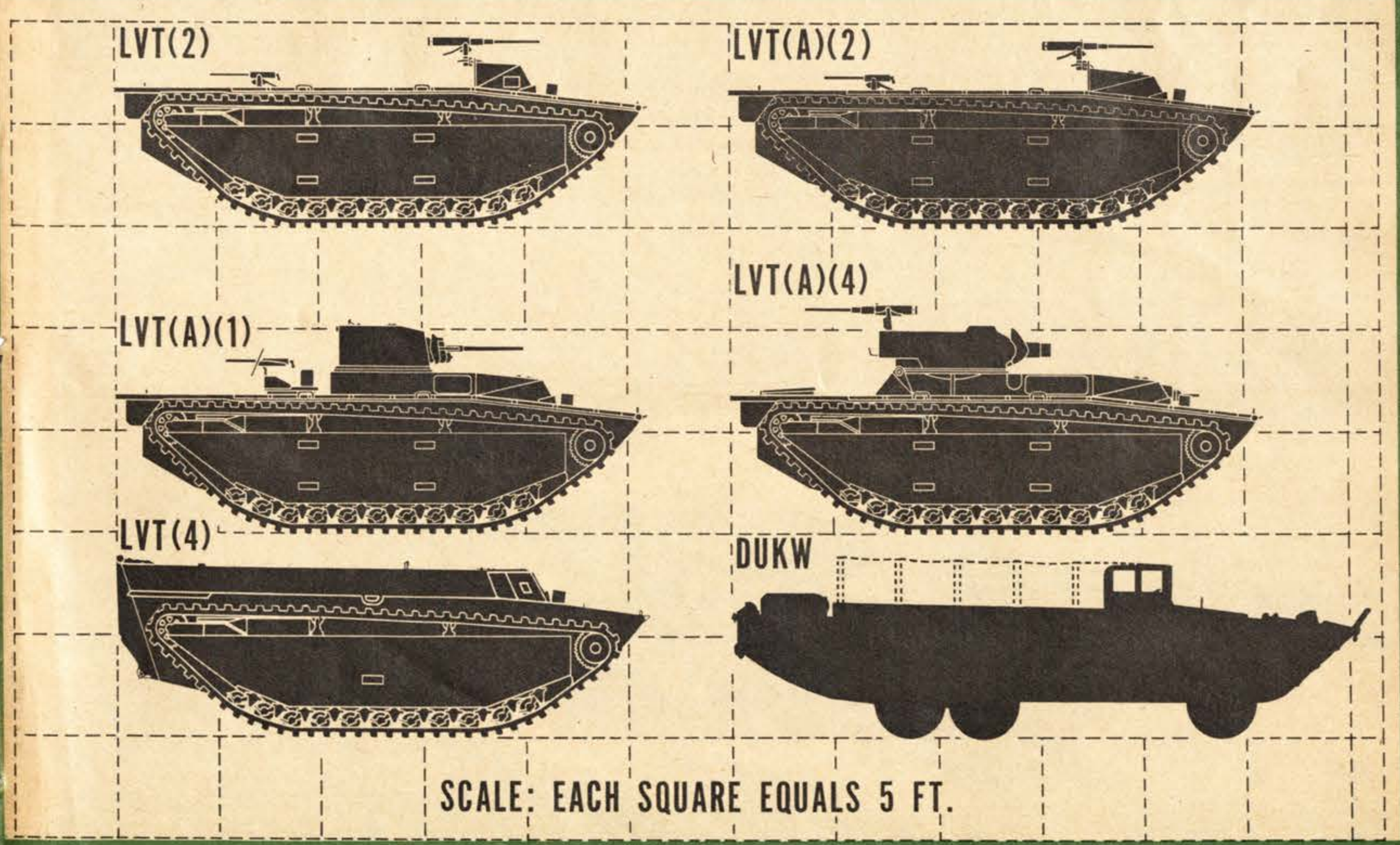
Usually seen in large, unmistakable flotillas, landing craft also operate in small groups, and the larger vessels may even be encountered singly far out to sea. Bargelike in appearance, they must be distinguished from enemy coastal types, especially Japan's luggers and seatrucks. The LVT(A)'s mix in the land action and thus present a problem in armor recognition.



SCALE: EACH SQUARE EQUALS 25 FT.



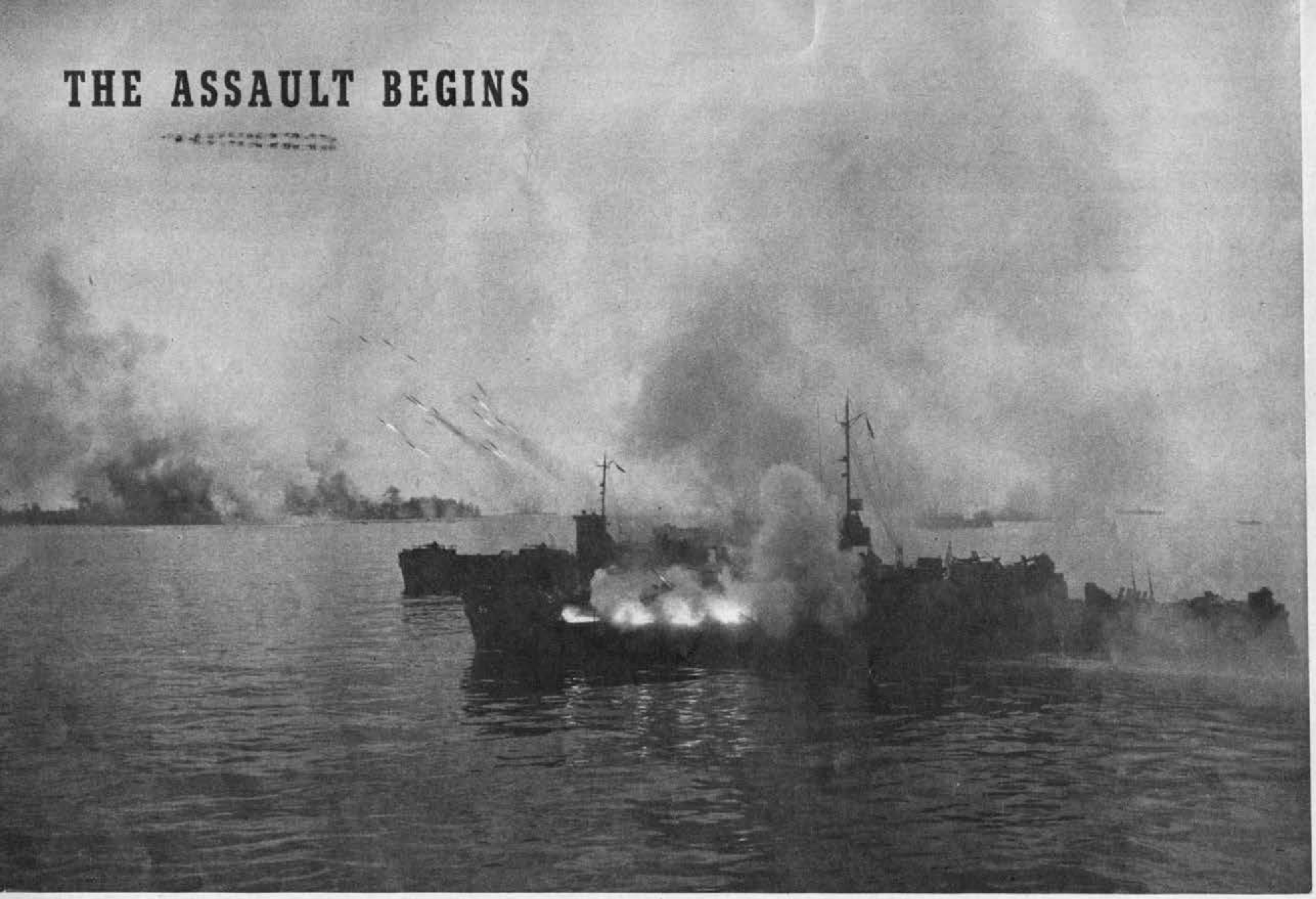
SCALE: EACH SQUARE EQUALS 5 FT.



SCALE: EACH SQUARE EQUALS 5 FT.

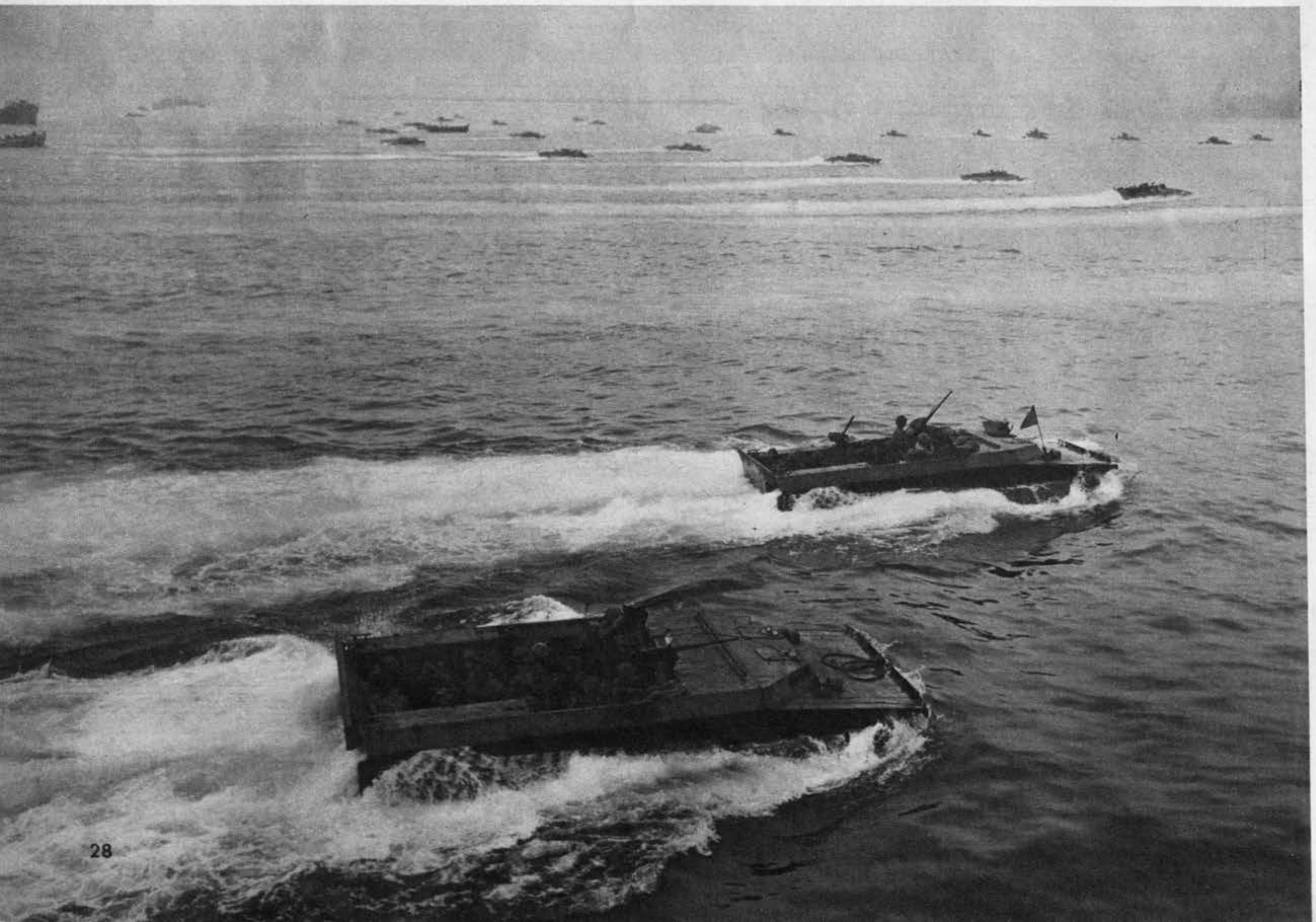
DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION—DECEMBER, 1944

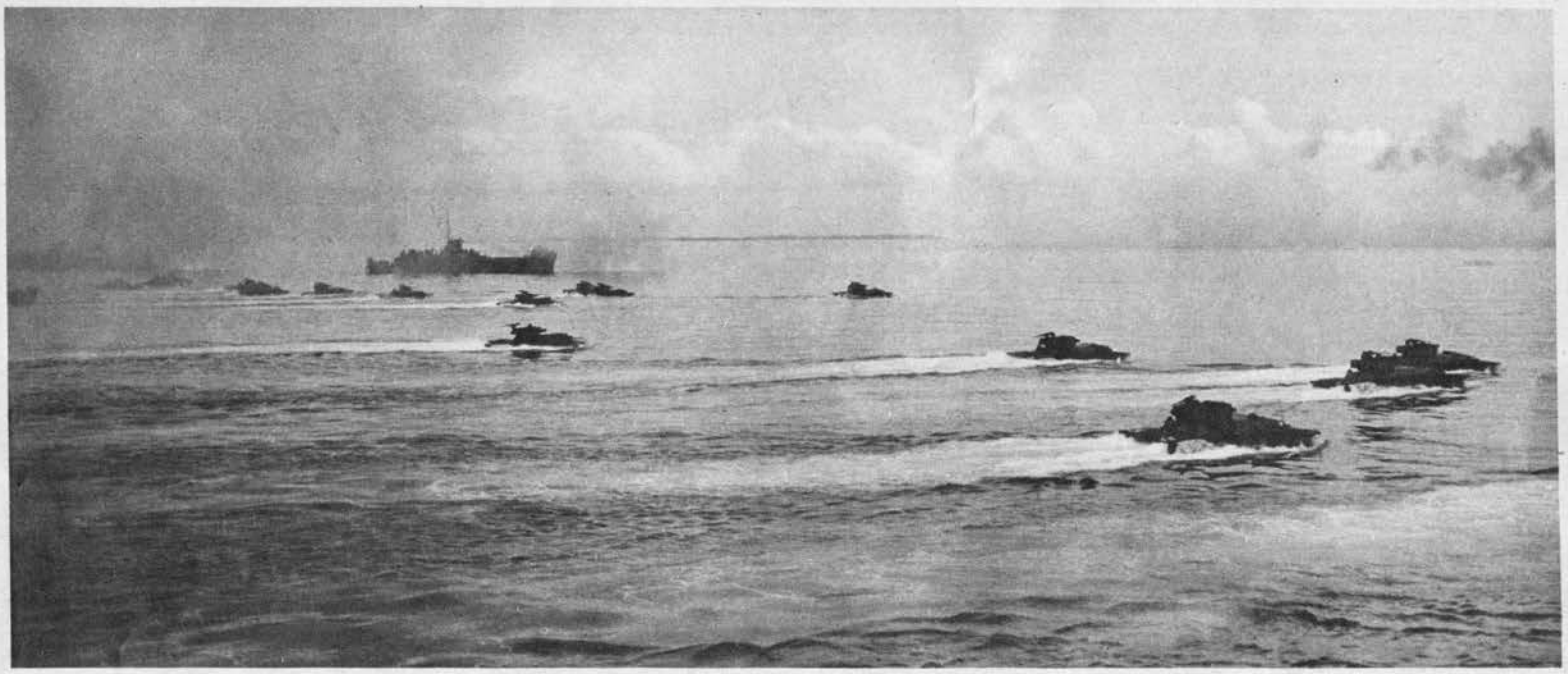
THE ASSAULT BEGINS



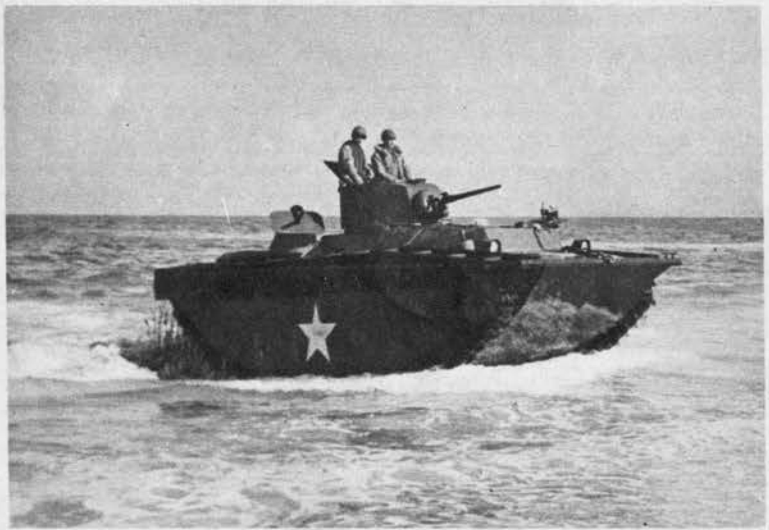
Rocket-firing LCI's (*above*) lay down a withering barrage on beaches of Peleliu Island. High rate of fire together with great blasting power makes rockets ideal for short-range saturation of enemy defenses.

Loaded with troops, amphtracs (*below*) churn their way in to Palau beachhead. LVT(4) has low, even superstructure extending to stern. Stern ramp for quick loading creates angular, "dump-cart" overhang.

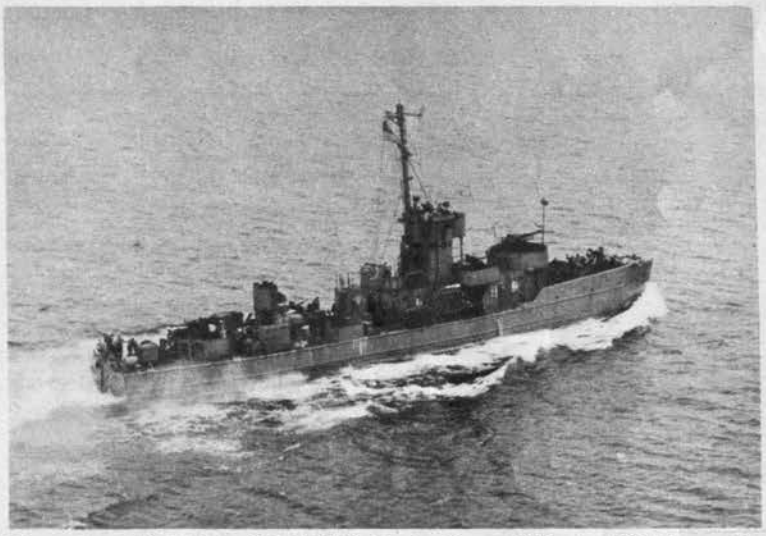




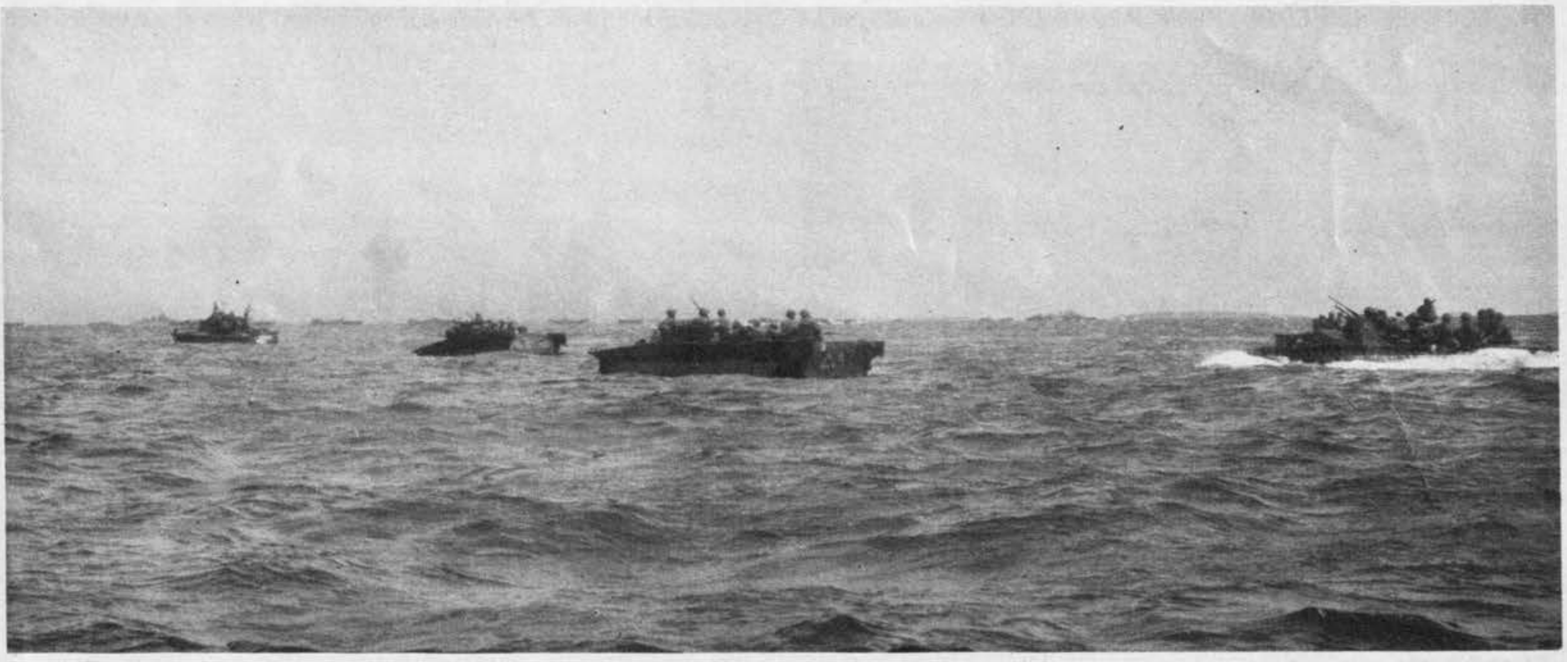
Stubby 75-mm. howitzer in an M-8 turret is mounted on the LVT(A)-(4), supplemented by a ring-mount .50 MG and a .30 in the hull. Similar in hull design to the (A)(1) (*below, left*), the (4) answers need for an amphibian tank with heavier armor and firepower. LVT(A)'s are armored versions of the LVT carriers. Latter have combinations of pedestal-mount MG's, and "pin-up" armament which can be bolted on.



Deep, "rocker" hull and the narrow track show as LVT(A)(1) crawls onto beach. First amphibian tank, it is armed with 37-mm. cannon. Turret and low sloping superstructure are chopped off abruptly at rear.

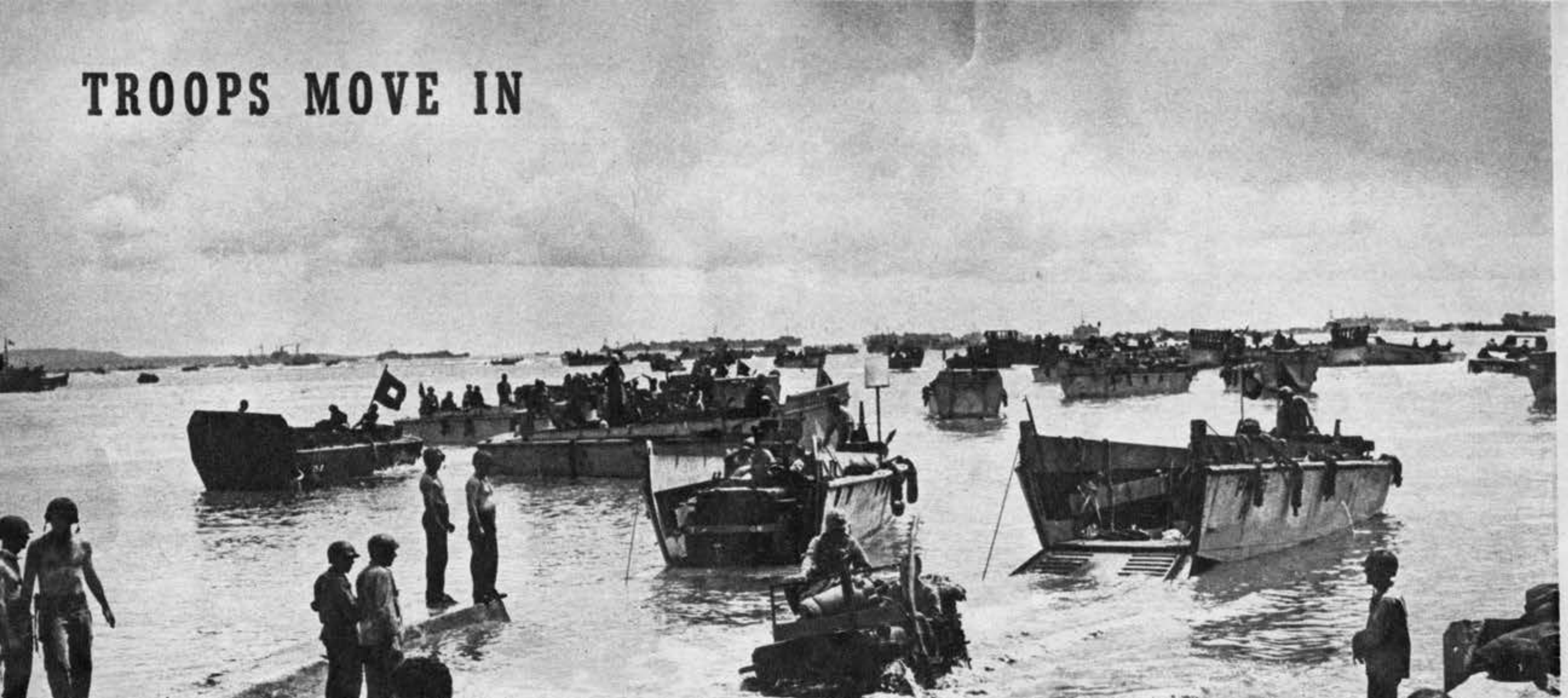


New support craft is LCS(L)(3). Basically an LCI, the LCS has tall pilot house, heavy mast and conspicuous gunshields. It is designed to raid Japanese inter-island barge traffic as well as support landings.

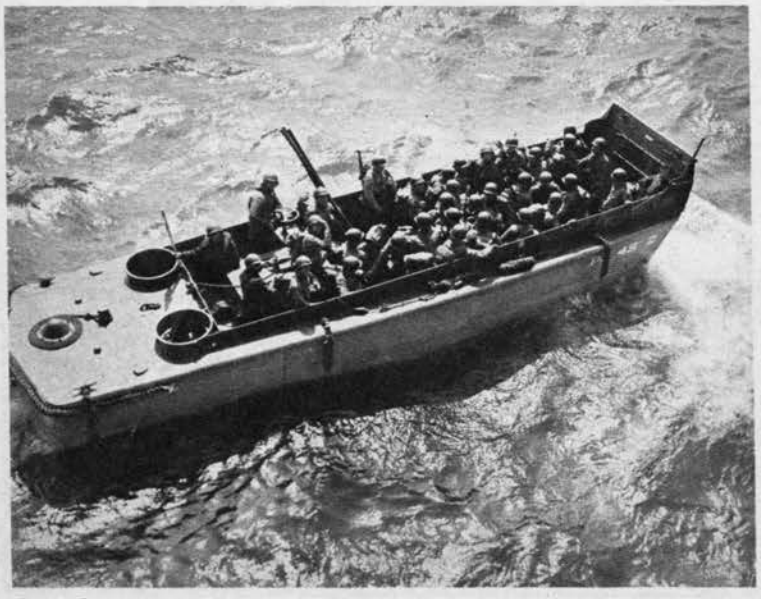


Low silhouettes are afforded by three LVT(A)(2)'s wallowing in the water off a distant beachhead. Only difference between LVT(2) and LVT(A)(2) is the armor plate construction of the latter. Both have low, sloping cab set forward on the hull and basic armament of two to four machine guns. A squad of 24 men or equivalent cargo can be carried at a speed of 25 m.p.h. on land, or 5.4 knots in the water.

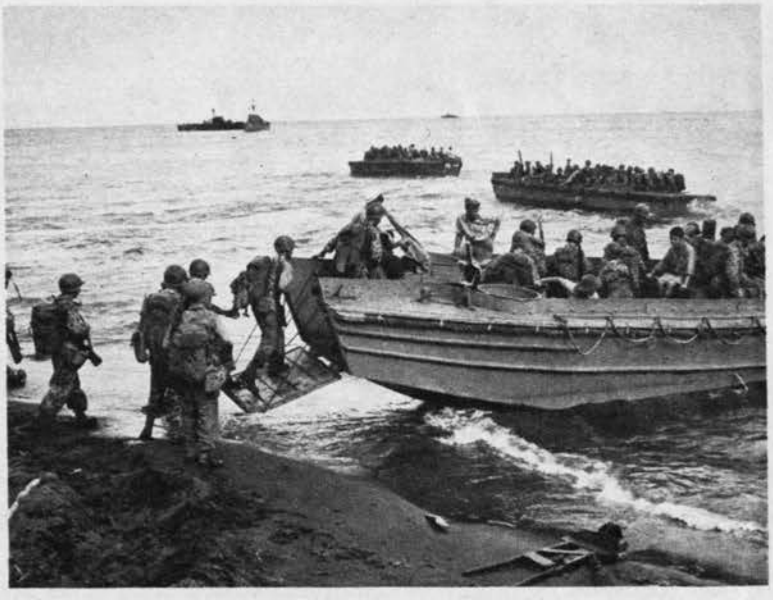
TROOPS MOVE IN



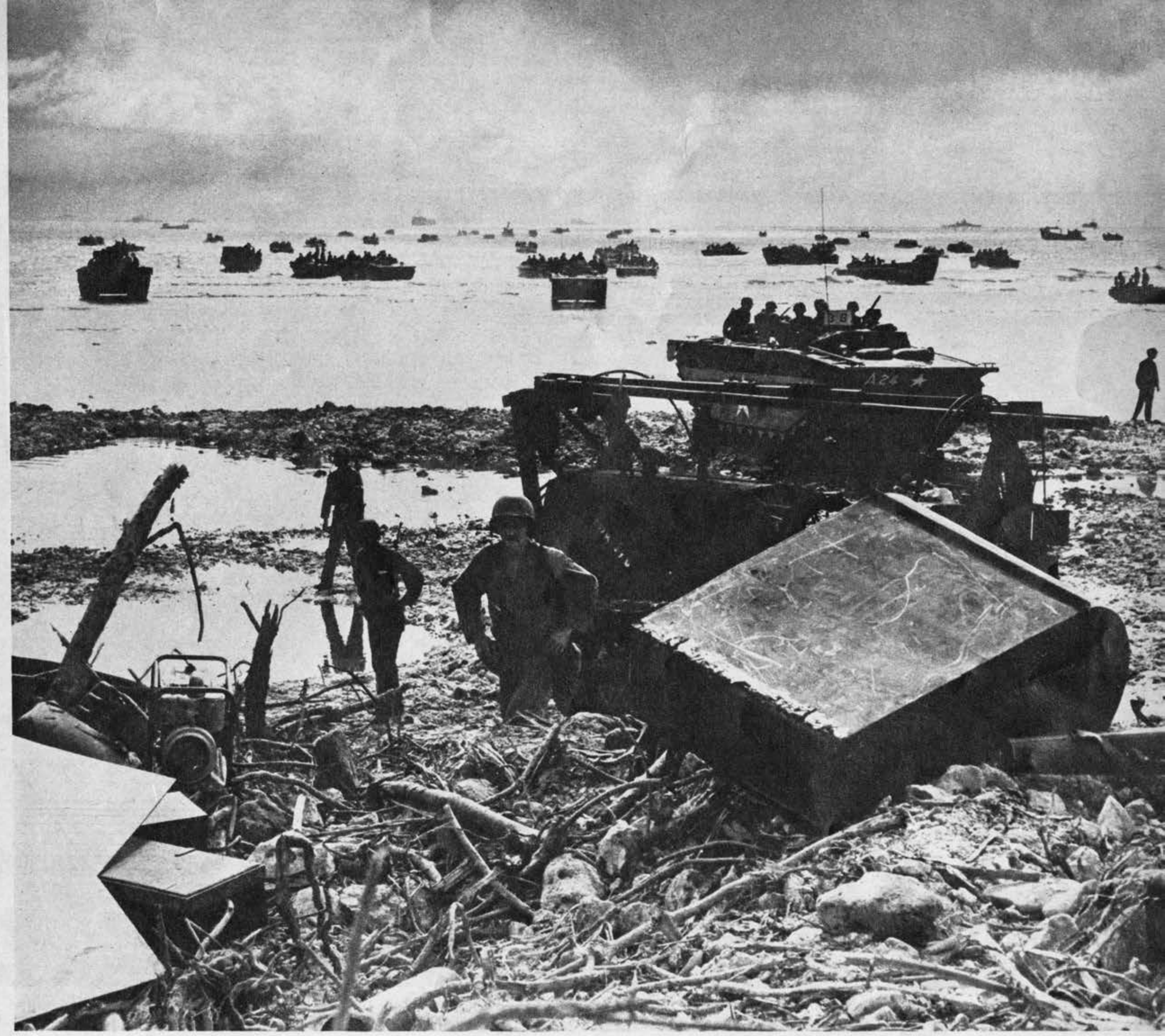
Amphibious flotilla swarms off Saipan beachhead as LCVP's jockey into position to disgorge their vehicles onto the metal landing mat. The LCVP (Landing Craft, Vehicle, Personnel) is a low and simple metal shell designed for light vehicle transport, and also used for miscellaneous cargo and passengers (*below, left*). Note grilled ramp bows of LCM's rising in middle distance, and bulk of LST's along the horizon.



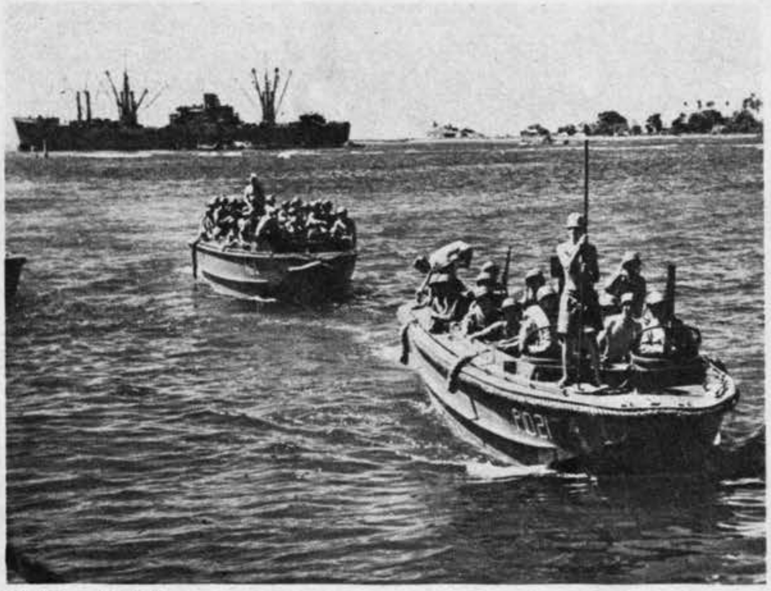
Assault troops are among varied loads brought in to the beach by LCVP's during the early stages of a landing operation. Craft is 36 ft. long, and has a decked-over stern with two round gunner's cockpits.



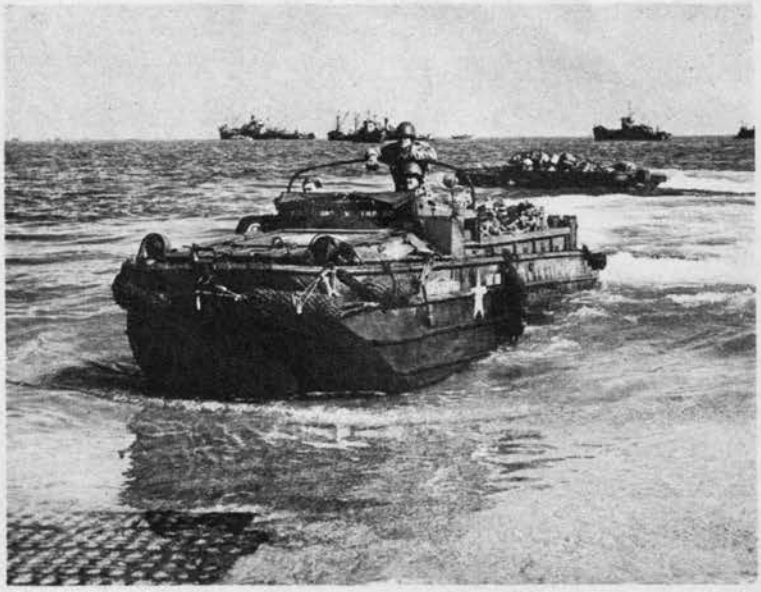
Bow ramp on 36-ft. wooden assault boat makes for quicker dispersal of shock troops onto beach. This small type is familiarly called "Higgins boat" from its chief manufacturer, is officially designated LCP(R).



Broad frontal silhouette is shown by amphibious LVT(2)'s rolling up onto Kwajalein beach, while LCVP's ground farther out in the surf. LCVP's have prominent, upswept ramp bow, but loaded LVT's ride in almost flush with the surface of the water, offering small target for enemy fire. Along the horizon three battleships can be seen, shielding the complex welter of small craft that shuttle back and forth inshore.

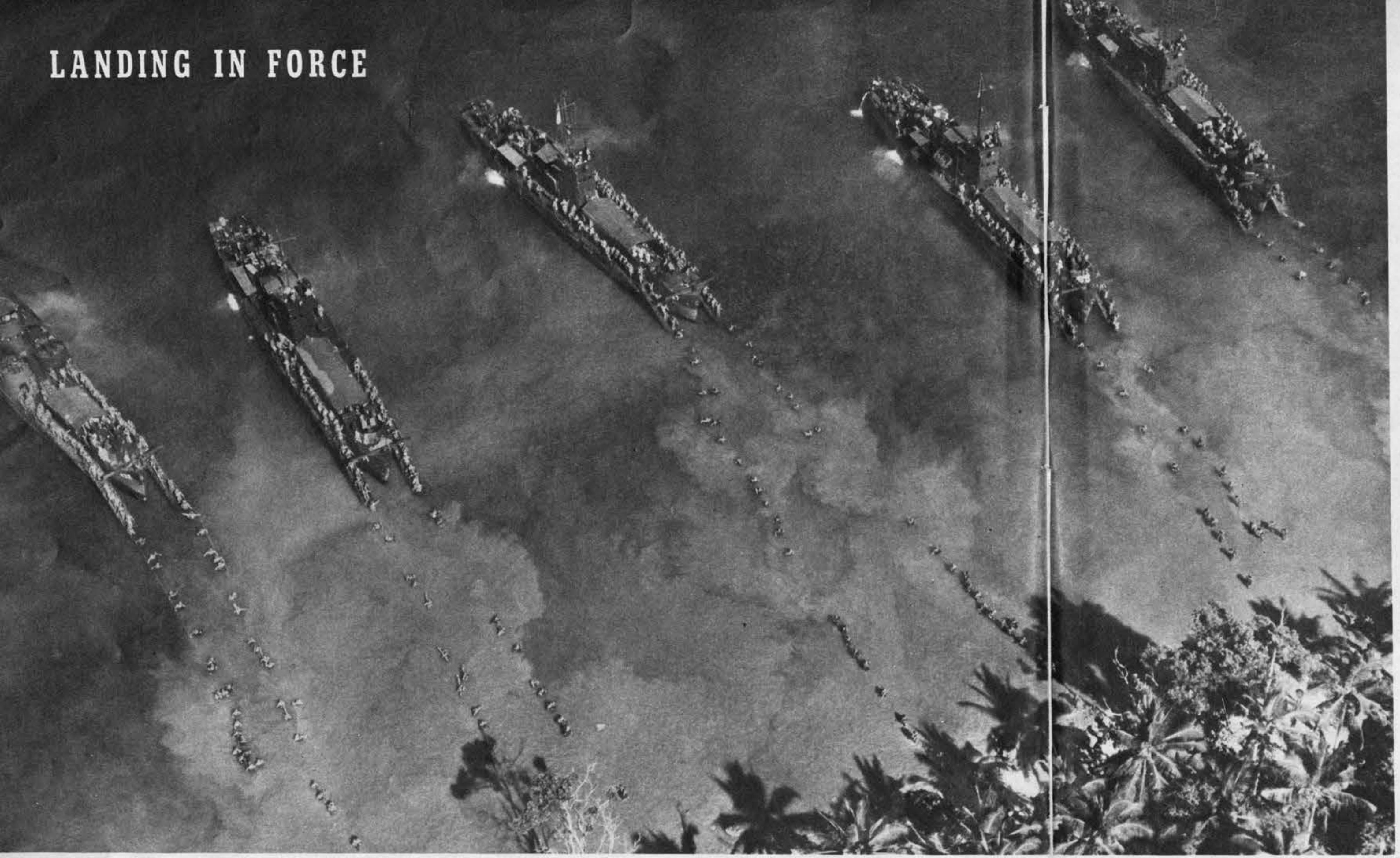


Old-type LCP's (without bow ramp) cruise in to an atoll bringing reinforcements from the transport. First U. S. personnel assault boat, the LCP is being replaced by the more efficient LCP (R) and versatile LCVP.

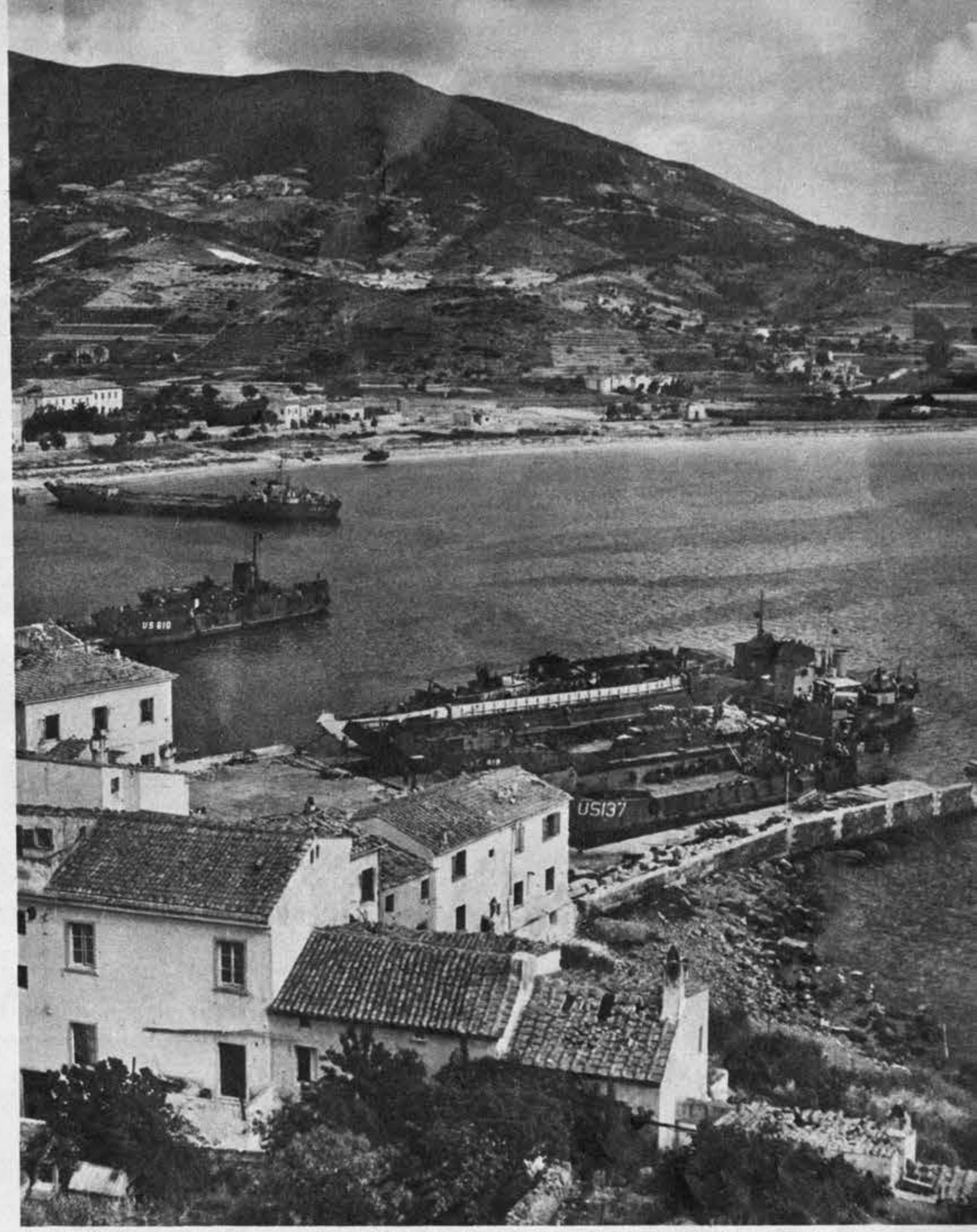


Amphibious truck (DUKW) heaves itself out of the water onto landing mat. The DUKW has a boat hull and small propeller to carry it through the water. Note cruising DUKW and LCI in the background.

LANDING IN FORCE

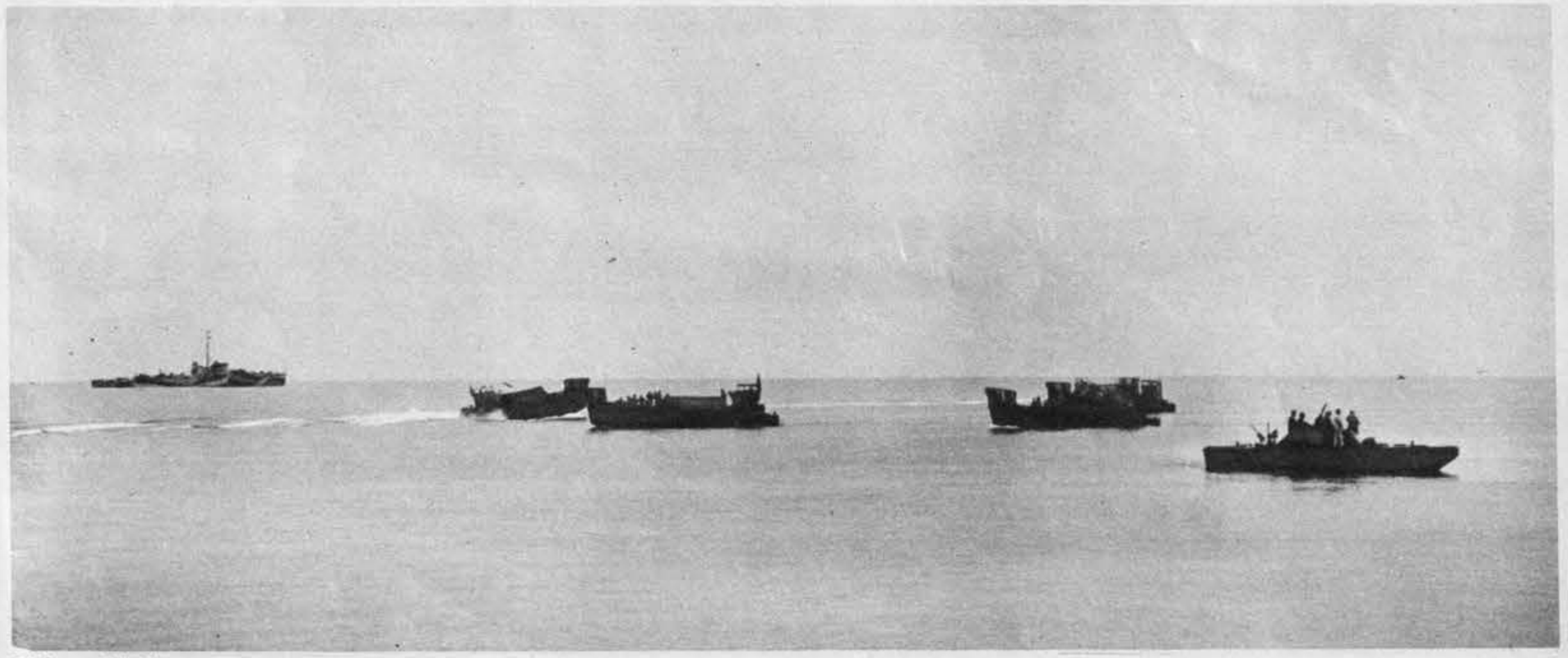


Files of infantry tramp down double ramps of LCI's and wade ashore through shallow water with the aid of hand ropes. When pulled up, ramps are carried outside bulwarks, remain distinctive feature. LCI at the far left is newer type with smooth streamlines and round pilothouse; others are older version. Deckhouse on new model is full beam width, has round gunshield in each corner (two after shields are covered by canvas on LCI above). Newest LCI version has a single, center-line ramp which lets down between bow doors as on the LST.



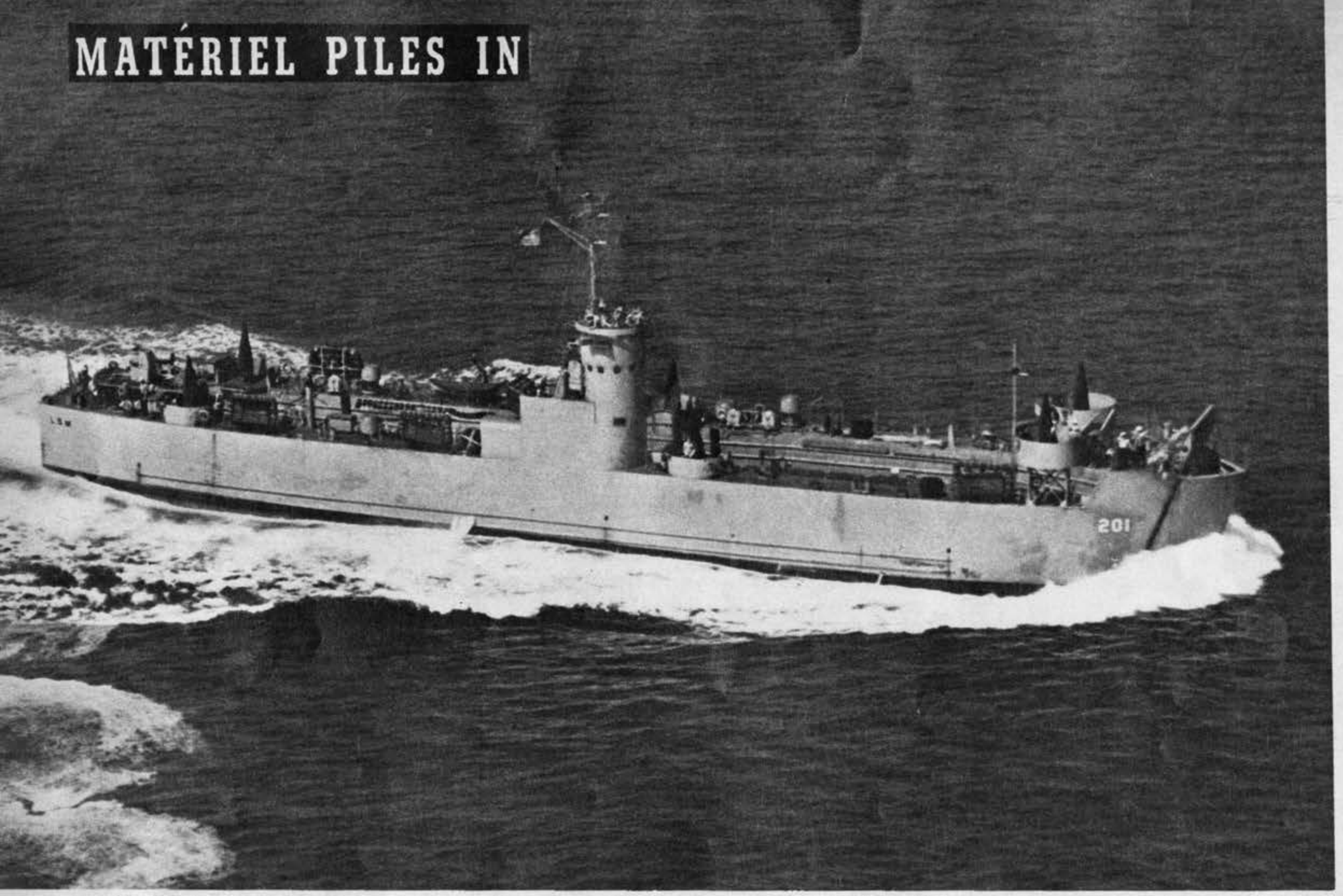
Small Italian port shelters various Allied LCT's (Landing Craft, Tank). New LCT(6) *(second from left)* has higher freeboard than LCT(5) moored next to the quay. Pilothouse is forward on starboard side instead of at center stern. Two long, low stacked craft are British LCT(4)'s.

Square pilothouse rises directly from deck on old-type LCI's, here heading into jungle shore of New Guinea. Deckhouse on this first model is narrower than deck, and outline is leaner, less substantial than that of streamlined type. Less bargelike than other landing craft, the 158-ft. LCI looks more like a minor combatant or coasting vessel. Many LCI's have been armed for use as gunboats and support craft.

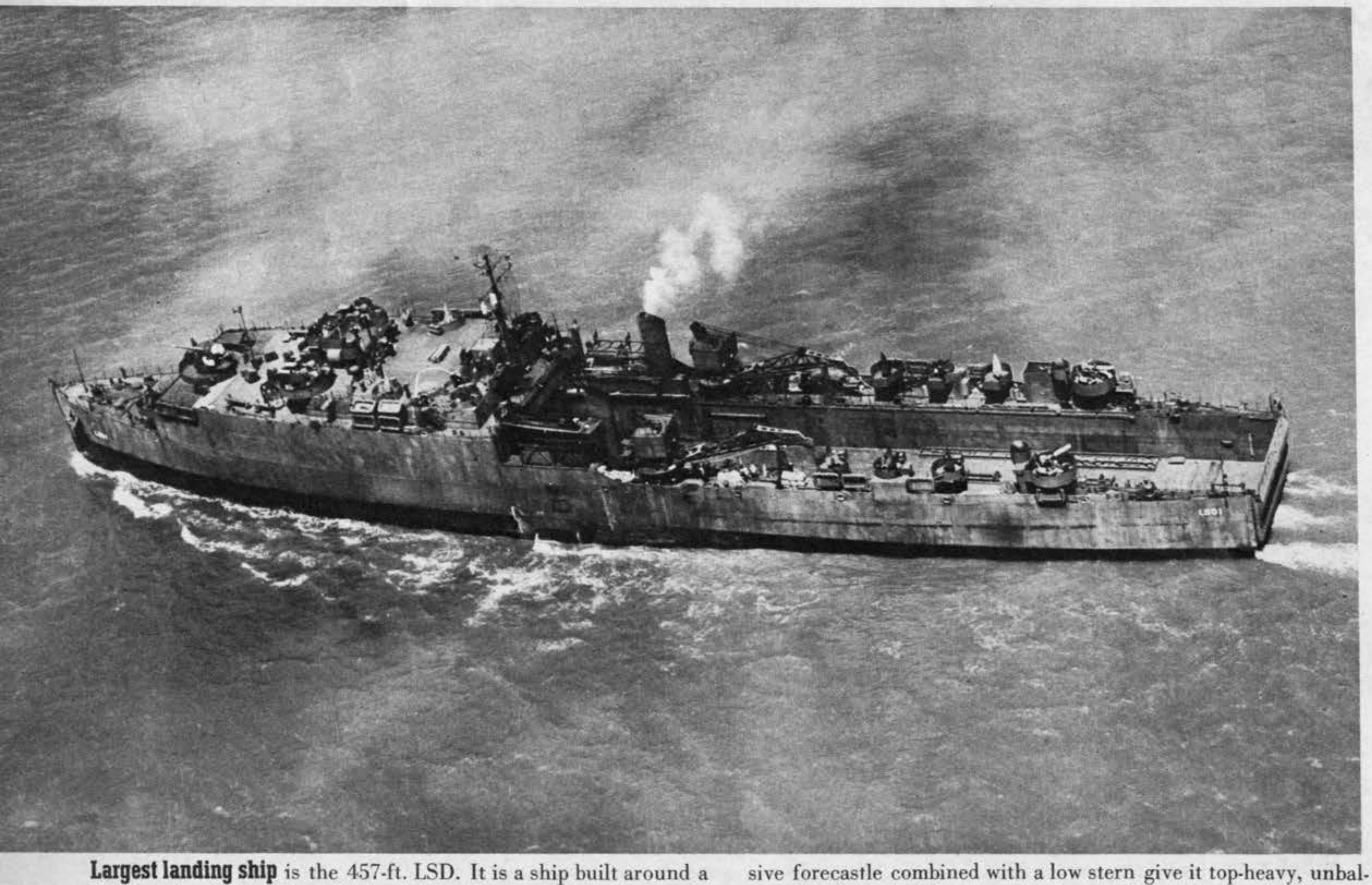


High, grilled ramp forms the bow of 50-ft. LCM(3), balanced by small square cockpit at stern. LCM performs same function as LCT on a smaller scale, carrying one tank or miscellaneous vehicles and guns. A new Army version, the LCM(6), has a hull section inserted amidships which increases the length by six feet. Craft at the right is an LCS(S)(2), a support vessel armed with machine guns and rockets.

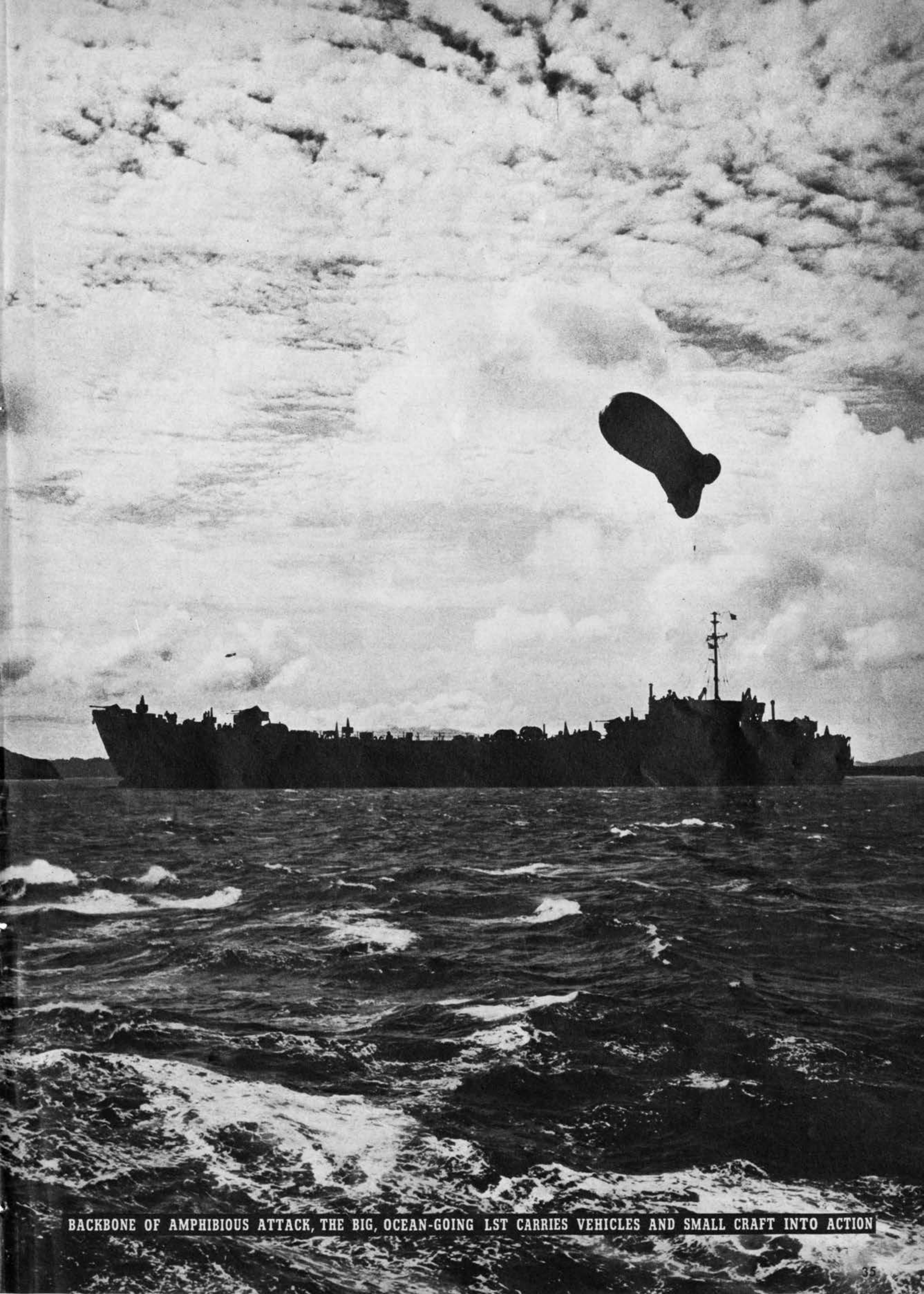
MATÉRIEL PILES IN



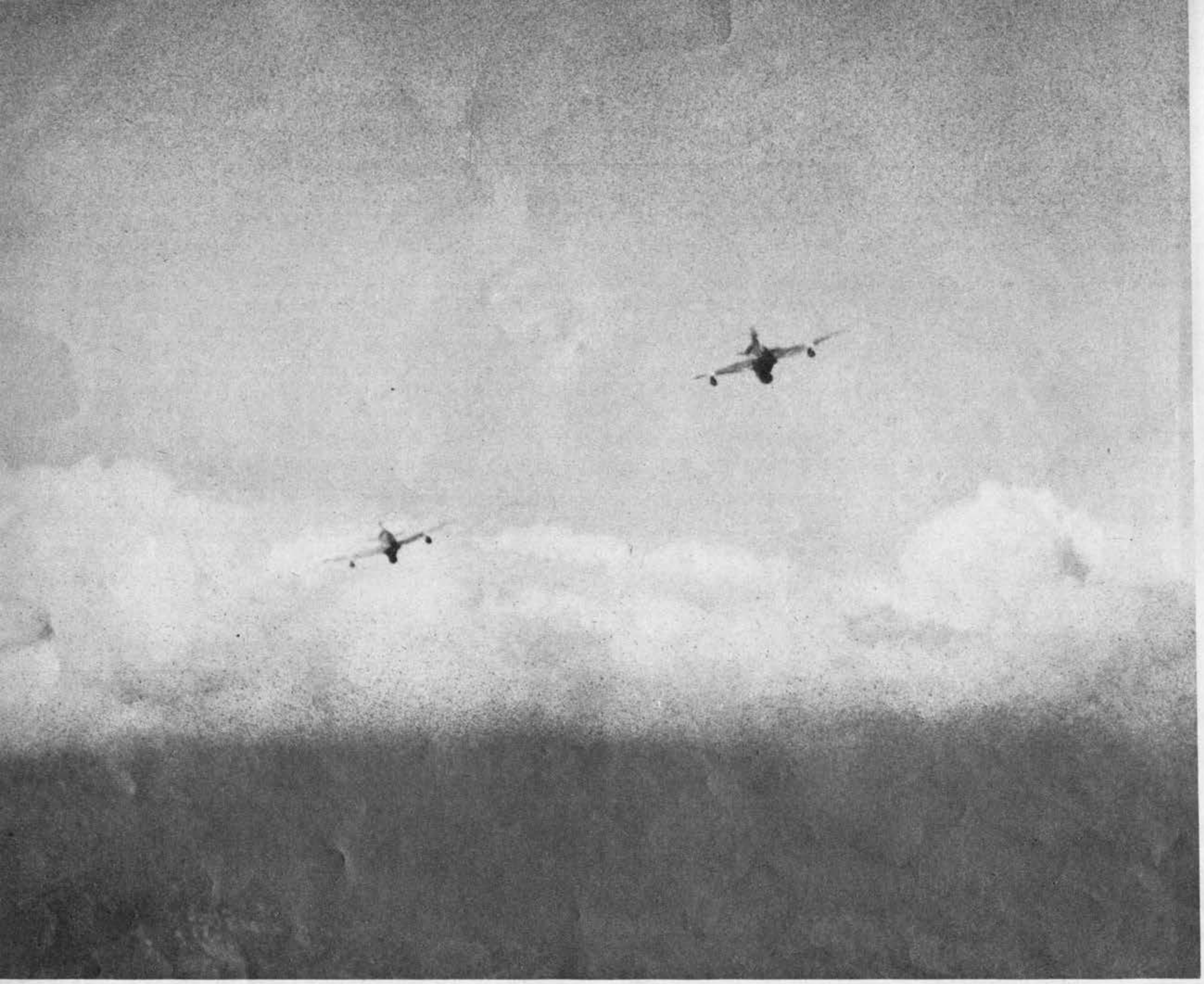
Hybrid LSM (Landing Ship Medium) is a cross between the LST and LCT(6). It provides LCI's with closer support in vehicles and armor than the larger LST is able to do. The 200-ft. LSM carries varying loads of DUKW's, LVT's and tanks which land alongside LCI troop complements. A round bridge tower on the side suggests the LCI, but the vehicle-carrying LSM has an open hold and no deckhouse.



Largest landing ship is the 457-ft. LSD. It is a ship built around a floating dry dock, and carries loaded landing craft into the beachhead area. Then the hold is flooded, and the craft sail out. The massive forecastle combined with a low stern give it top-heavy, unbalanced look. Insignificant stacks rise amidships from each bulwark. Open hold aft may be decked over temporarily to carry more cargo.



BACKBONE OF AMPHIBIOUS ATTACK, THE BIG, OCEAN-GOING LST CARRIES VEHICLES AND SMALL CRAFT INTO ACTION



ONLY BY SORTING OUT THE CURVED WINGS AND DEEP FUSELAGES FROM THE CONFUSION OF BOMBS AND FUEL TANKS CAN ONE SPOT THESE P-47'S

APPENDAGES

SHAPES OF FAMILIAR WARPLANES ARE CHANGED BY EXTERNAL BATTLE GEAR

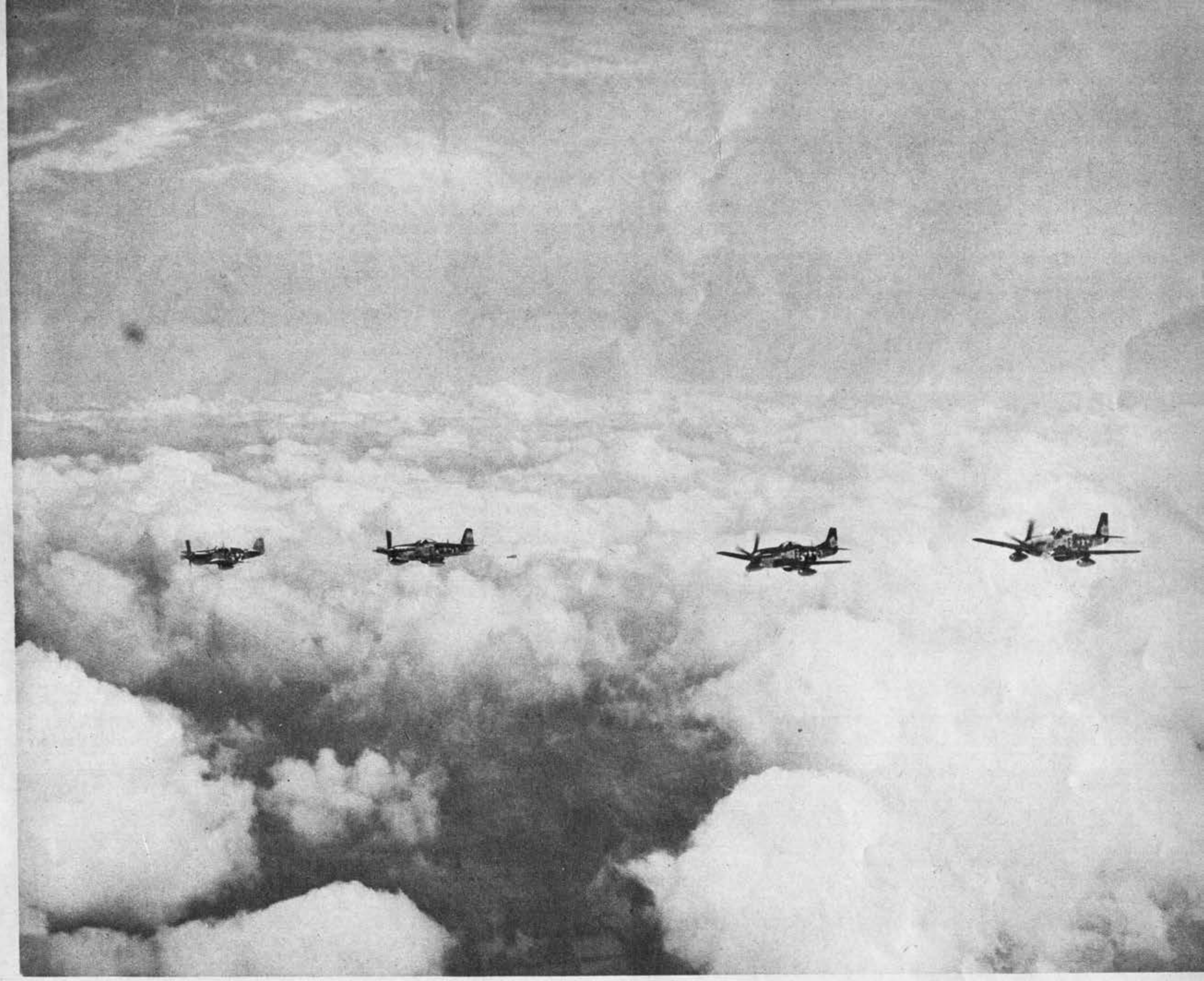
Today's combat planes carry all sorts of externally mounted appendages. On Allied aircraft these include bombs, torpedoes, auxiliary fuel tanks, rocket tubes and rails, radar installations and life-saving equipment. Other gear, such as cable cutters and mine detonators, has also been mounted, but not in sufficient quantity to require special attention. Not to be regarded as appendages are the floats and turrets which are permanent parts of some airplanes' structures.

While these appendages add to a warplane's range or firepower, or enable it to carry out some specialized task, they do not make for easy recognition. They may obscure portions of the fuselage or wing; they may give the illusion of a float or a nacelle which the plane does not have; they may even distort the overall shape by blending in with wing or fuselage lines. In this issue the *Journal* is presenting introductory examples of various types of appendages and how they can affect an airplane's appearance. In future issues there will be material on specific appendage problems.

The best way to handle the recognition of appendage-carrying aircraft is to know exactly what appendages are carried on what planes in a given theater. Once the shape and location of an appendage is known, it may turn out to be a recognition aid. An example of this is the radome on the TBM-3 (*see page 8*), which, unlike bombs and gas tanks, is not a jettisonable feature. Even when the appendage conceals some part of the airframe, it should cause no difficulty as long as its presence is anticipated.

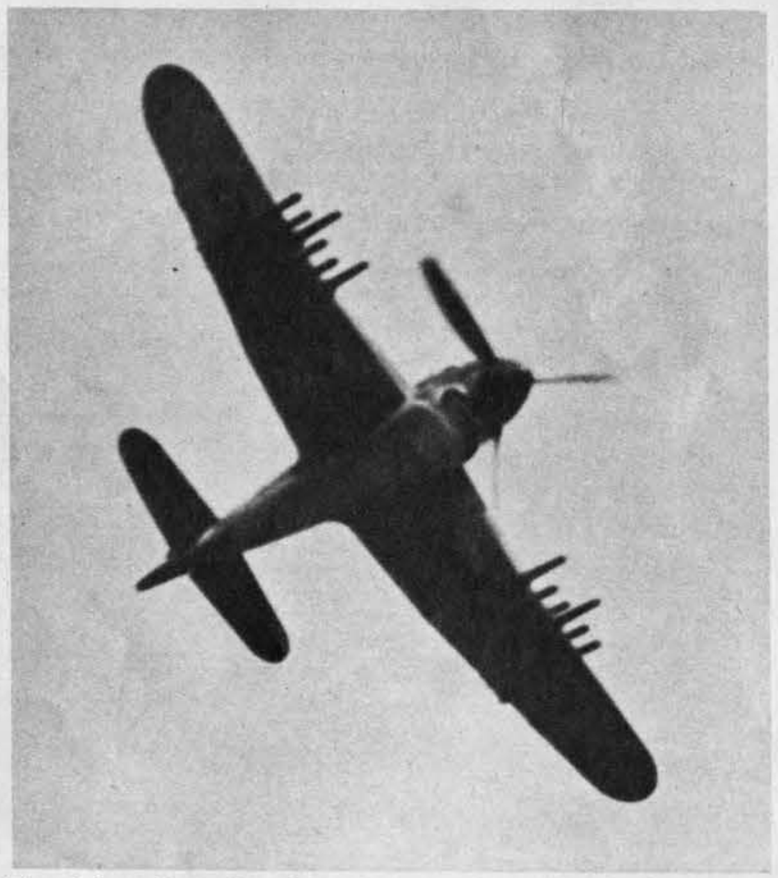
At the same time a knowledge of appendages can never be a substitute for knowledge of the original airframe. During the Second Battle of the Philippines, U. S. Navy planes coming in to land on the Tacloban airstrip were fired on by friendly gunners because their landing gear was down. To these gunners, visible landing gear meant the Japanese divebomber, Val. In failing to look past the appendage they did not check for Val's really distinguishing characteristic, its elliptical wing, and failed to make positive recognition of the Navy's Avengers and F6F's.

This incident proves that the only safe basis for recognition is the basic airframe, regardless of what may be hung on it. Observers should not feel that because formerly clean wings and fuselages may sometimes look like Christmas trees, they need no longer be studied. It is precisely because their outlines may be disguised that they must be learned more thoroughly than ever before.

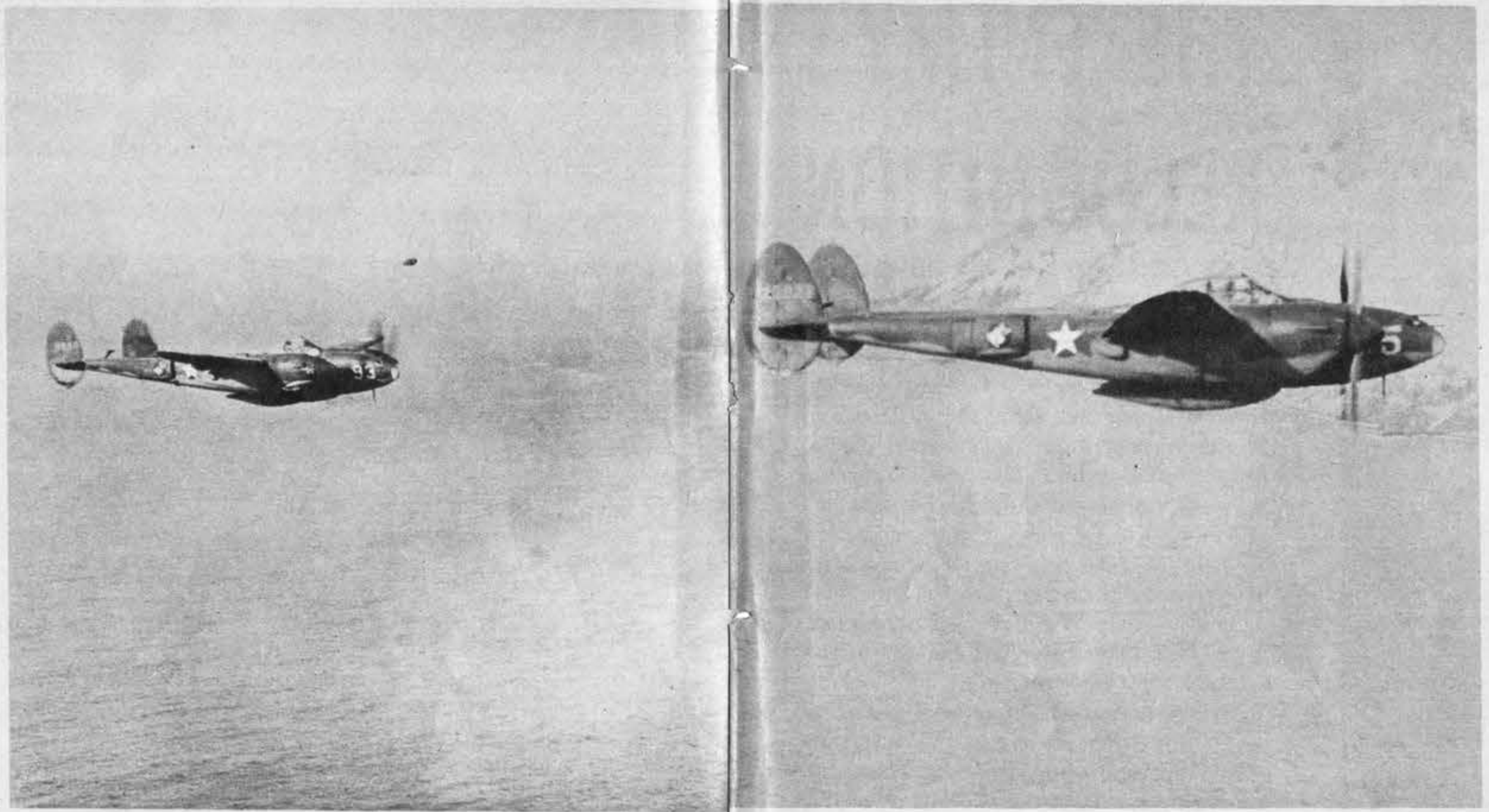


WING TANKS MAKE P-51'S LOOK DIFFERENT FROM DIFFERENT ANGLES. ON CENTER PLANES THE TANKS LOOK LIKE AIRSCOOPS UNDER THE NOSE

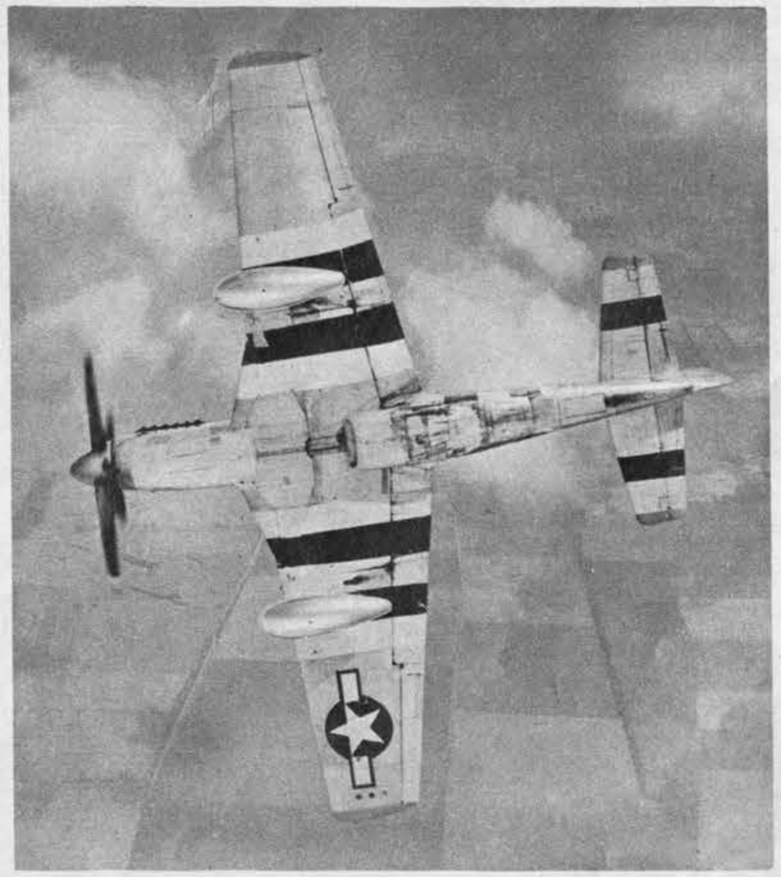
Varying distances combine with appendages to cause confusion. Both of these planes are SB2C's. The one at left looks small; bombs are invisible, recognition easy. The other being nearer, appears to be larger, and nacelle-like wing bombs give the illusion of a twin-engine plane.



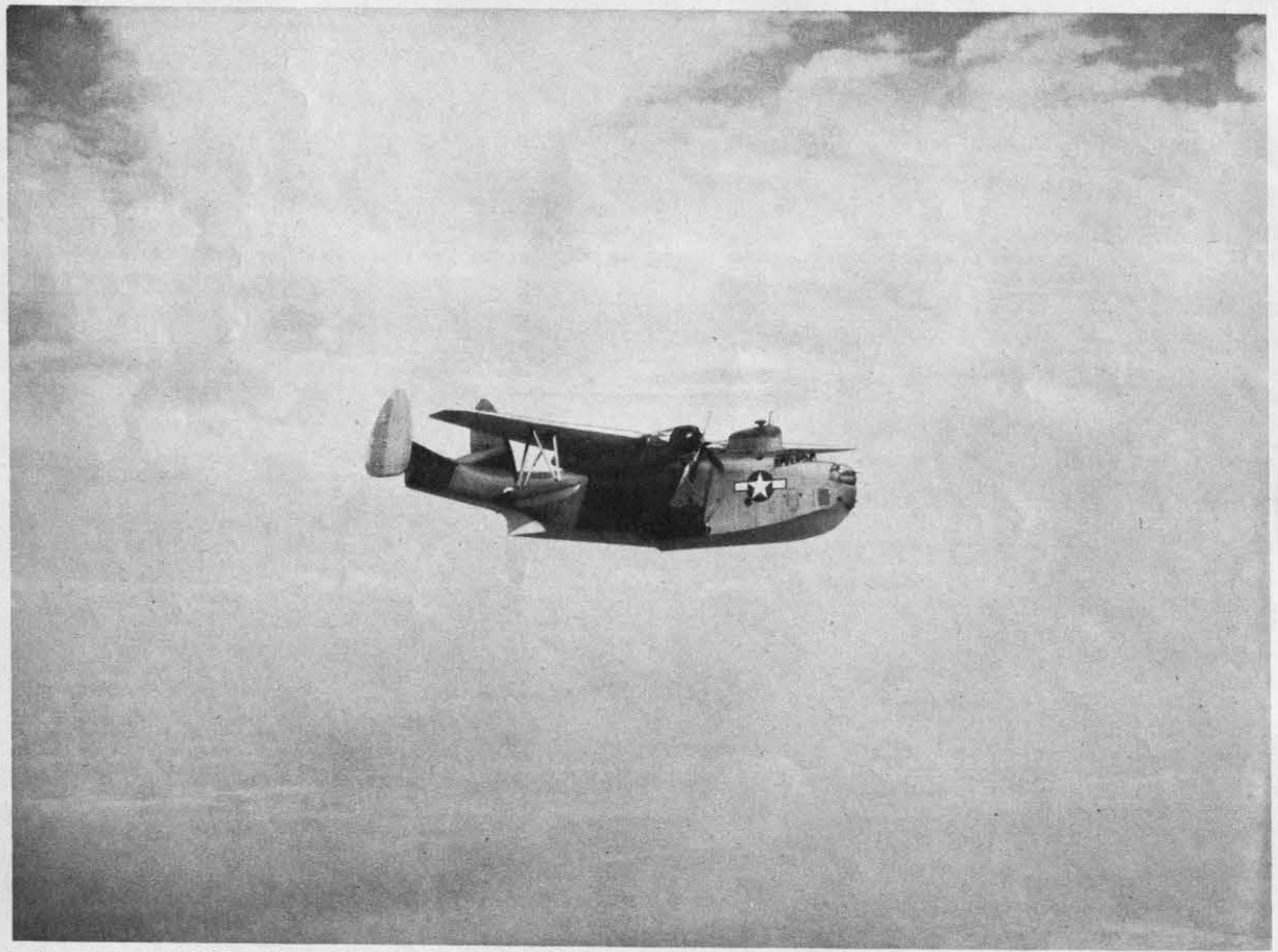
The eight rocket rails and four cannon in the Typhoon's wing throw a full salvo equal to a CL's broadside but also affect the wing outline.



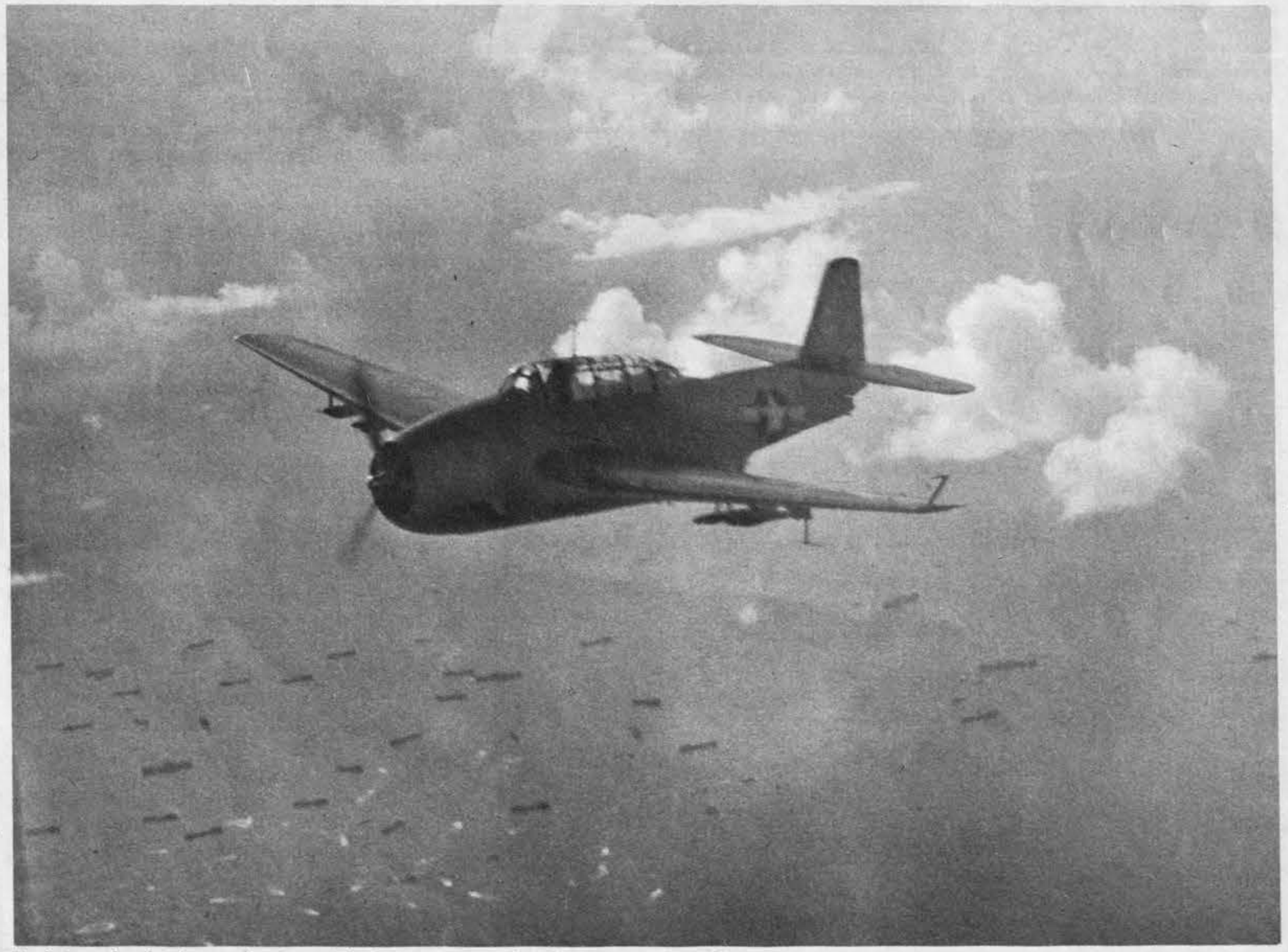
Fuel tanks on these P-38's are carried inboard of nacelles on either side of the gondola. At a distance they will blend in with the rest of the plane and change its whole personality in the side view. The long and slender Lightning may then resemble the hump-backed Me-410.



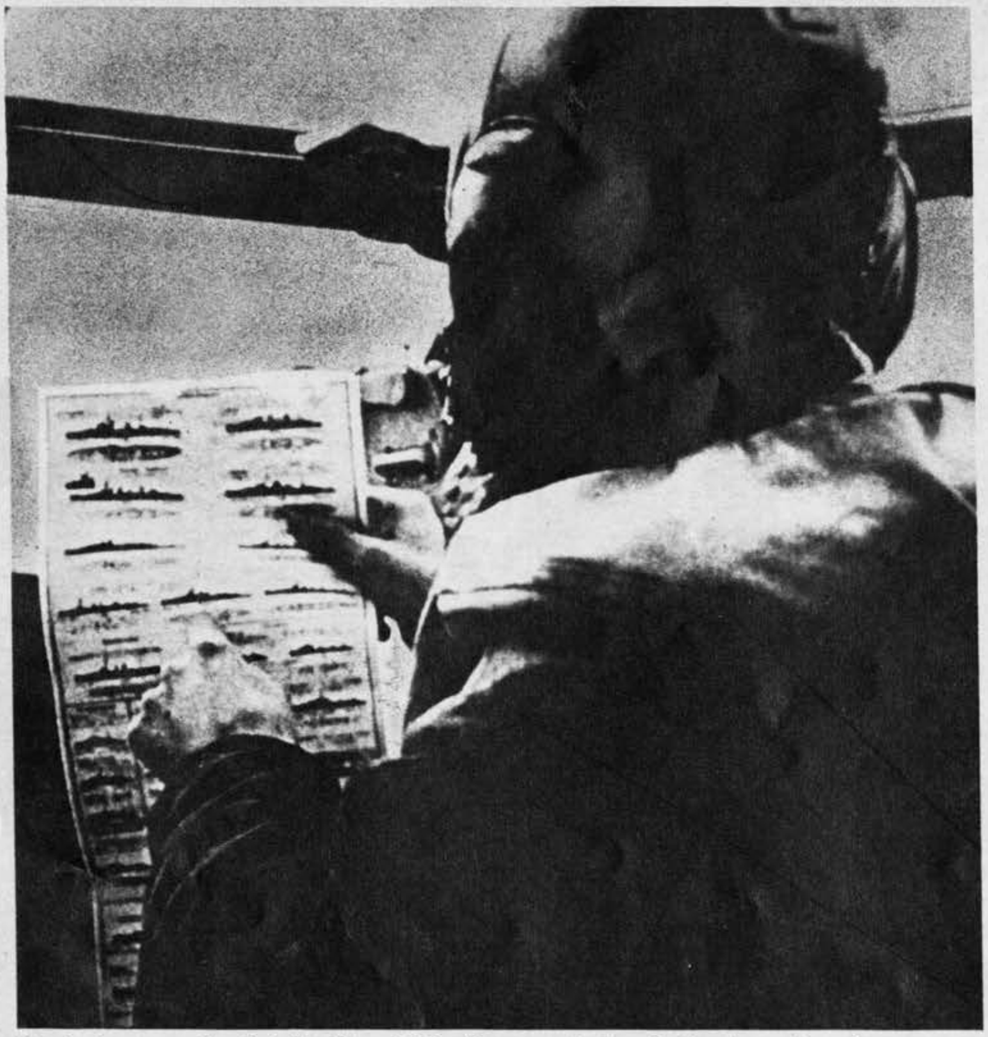
P-51's wing appendages are gasoline tanks, not wheels with pants. But the only sure shot for recognition is the Mustang's angular wing.



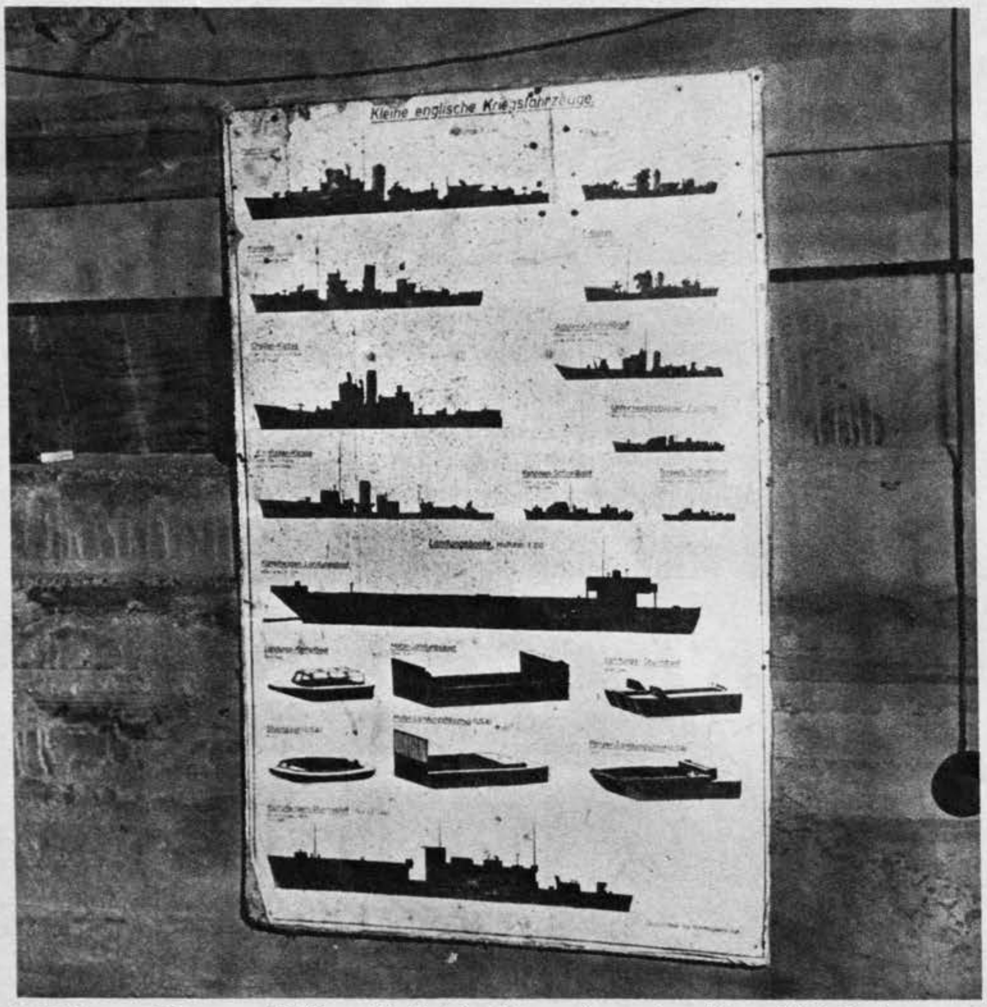
Radome set over a PBM's cabin could be mistaken for a third nacelle and possibly cause confusion with German BV-138. With this type of appendage, observers must simply realize what and where it is, must know other important details—in this case slanting fins and rudders.



Rockets under the Avenger's wing might from certain angles look like large diving flaps, thus misleading observers who know that no TBF or TBM has them. Rockets are but one of several kinds of appendages which the Avenger may carry. Another is the radome on the new TBM-3.



Nazi airman studies British CL and DD silhouettes before his bomber swings down over an Allied convoy. Southampton, Hobart, Arethusa and Leander Classes can be distinguished.



British escort types and U.S. and British landing craft are the subject of this Nazi recognition chart, prominently displayed on the wall of a German observation post in Cherbourg.

THE ENEMY'S RECOGNITION

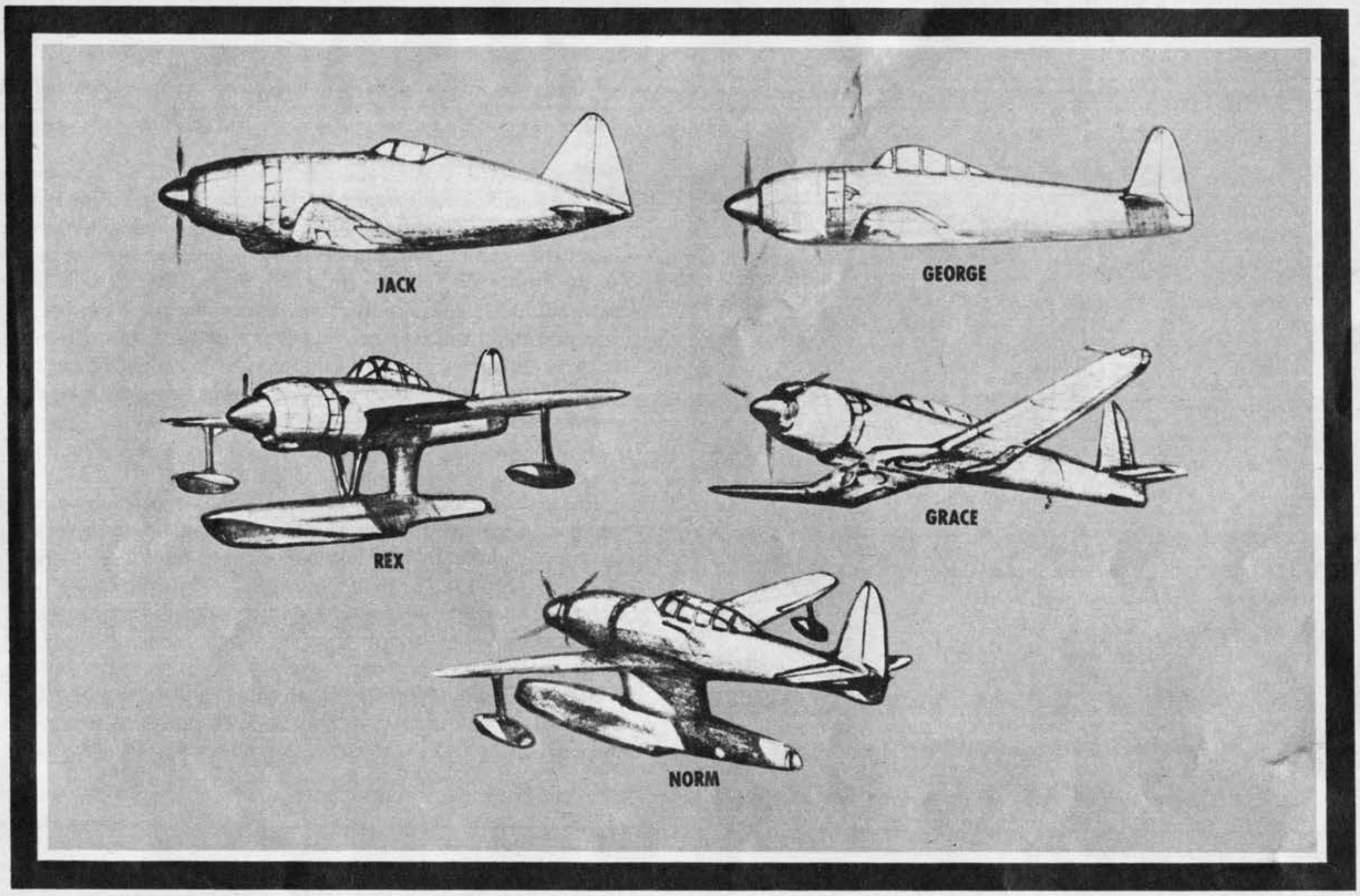
Here on these pages the *Journal* is printing a number of interesting examples of enemy recognition materials. Even these few illustrations show that the Germans and Japanese are concerned about the problem and that they are taking steps to meet it. The Allies are not up against a blind foe. Our enemy is a professional who knows his business.

Though the Germans' plane recognition problem is relatively simple—they only have to know their own, shoot down everything else—they have not overlooked a bet. When Nazi planes attacked convoys in the Channel, they knew what they were looking for (*see picture at left*). Captured newsreels have shown them in action. Observers in coastal posts are supplied with charts of Allied ship types, as the photograph at the bottom left shows. German infantry is supplied with a tank-busting manual which outlines the points of U. S., British and Soviet tanks in trenchant, witty verses and clear accurate drawings. The effectiveness of this battery of materials is shown by the scarcity of reported German recognition errors.

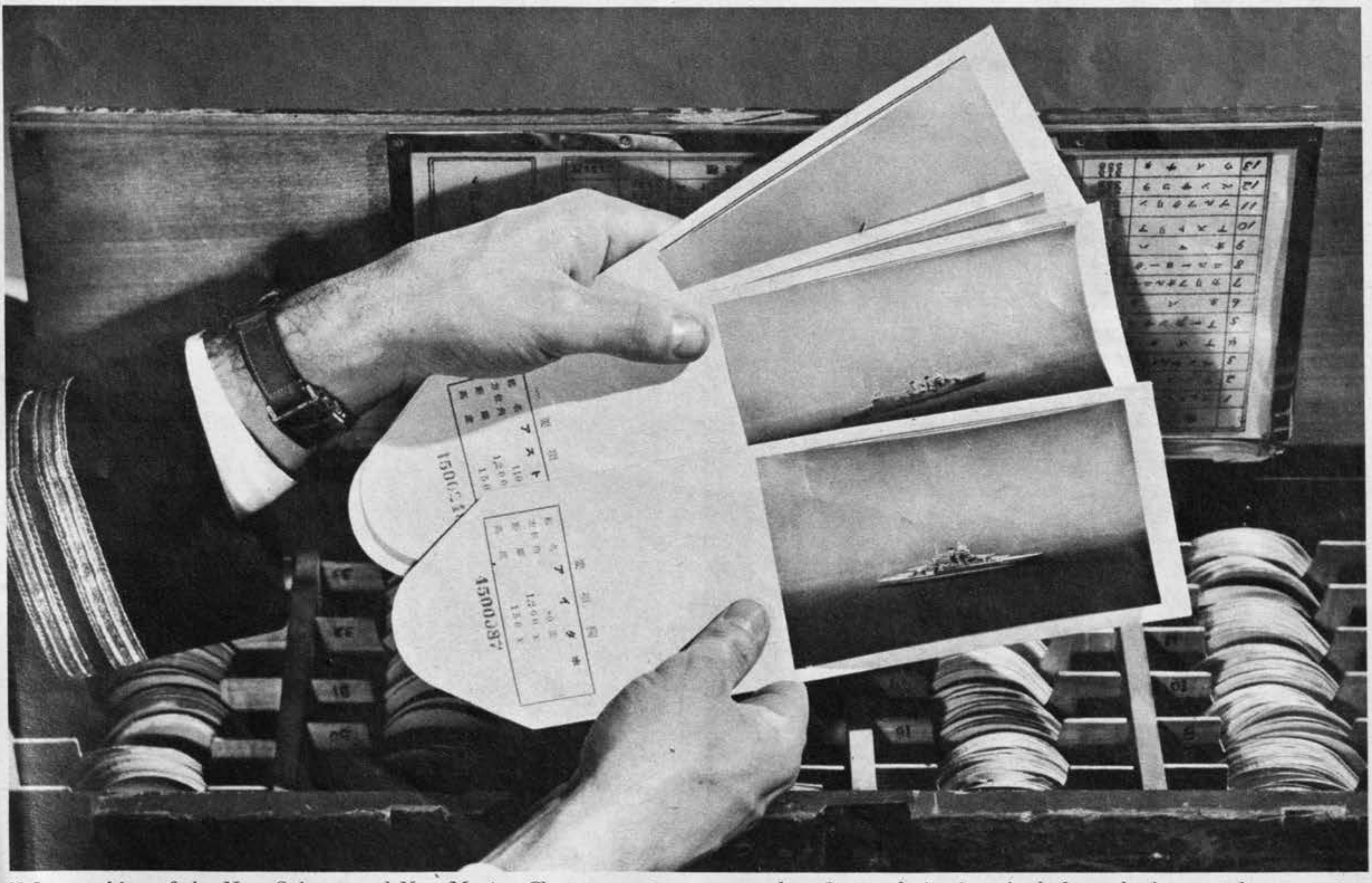
In the Oriental theater, the Japanese have caught on fast. Though the first captured Jap recognition materials were rough imitations of ours (see *Journal*, January 1944), the new equipment that has fallen into our hands is of a superior nature. Most impressive is a Jap recognition kit picked up on Guam (*below right*). It contains photographs of models of almost all U. S. and British ship classes, including BB's, CA's and several CV's and CL's. The models are of excellent workmanship and reasonably accurate as to design characteristics. The photographs are clear views from all distances and angles suitably mounted for balopticon use.

The plane sketches on the facing page indicate Jap interest in air-to-air recognition. These drawings show some of the very latest Japanese planes, planes of which very little specific illustration is yet available. Though they cannot be fully evaluated until we have more intelligence on them, their recognition value to us can be shown by comparing the sketch of Jack with the material presented in the *Journal* for October and December 1944. To do a comparable job a U. S. airman would have to be able to make accurate sketches of the F7F, B-24N, B-32 and SC-1.

Against such enemies we cannot overlook a single element of preparedness. To get the jump on them, Allied fighters must recognize first. If Jap or Nazi recognition is quicker or surer, our individual fighters' chances of winning the fight will be greatly reduced.



Japanese sketches of some of their newest planes appear to be reasonably accurate although they cannot be considered as official recognition renderings. Note the mid-wing on Rex and the inverted gull wing on Grace. George and Rex are fighters; Norm, a reconnaissance plane.

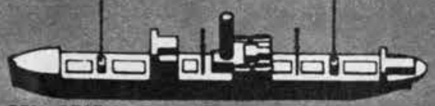


U.S. warships of the New Orleans and New Mexico Classes are pictured in a set of Japanese recognition cards found on Guam. Japanese covered surface and air views both from the beam and quarter, including close-up, mid-distant and distant views of the Allied vessels.

In these panels are simplified drawings of the 18 JMST types. Under each drawing is a brief description of design features which establish the classification, speed and tonnage. The first number of knots is the type's average speed; the second, its maximum. In the Fox division, kingposts and hatches between stack and bridge and abaft mainmast are not counted.

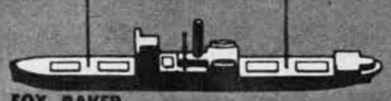
This summary is a revised version of the JAN 3 Guide. The Tare and Fox Tare groups have been simplified, while the Sugar division has expanded. A new folder entitled Joint Army-Navy Sighting Guide, incorporating these changes, will be issued.

FOX SPLIT SUPERSTRUCTURE



FOX ABLE

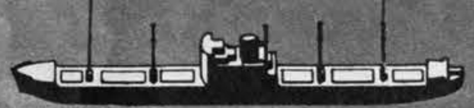
Min. of 3 masts or kingposts, 5 hatches. Either identifies. 5,500-7,500GT 11K 13-14K



FOX BAKER

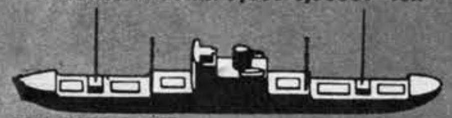
Max. of 2 masts, 4 hatches. Either identifies. 3,500-6,000GT 10K 12-13K

FOX TARE SHORT COMP. SUPERSTRUCTURE



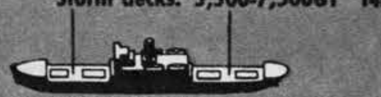
FOX TARE ABLE

Min. of 4 masts or kingposts, 6 hatches. No storm decks. 7,000-8,500GT 16K 19K



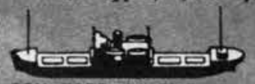
FOX TARE BAKER

Min. of 4 masts or kingposts, 6 hatches. Storm decks. 5,500-7,500GT 14K 16-17K



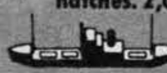
FOX TARE CHARLIE

2 masts or 4 hatches. Either identifies. (80% this type.) 2,000-4,500GT 10-11K 12-13K



FOX TARE CHARLIE

Masts or kingposts on forecastle & poop, 4 hatches. 2,000GT (Type K, Ore Ship. 5,300GT)



FOX TARE DOG

Superstructure aft of amidships. 3 hatches. The mainmast not centered. 700-1,300GT

JMST

Simple recognition features can be key to type and tonnage of Japan's merchant ships

In the Pacific, enemy merchant shipping is a high priority target. Japan's conquered empire is held together mainly by sea lanes. Hence all major supplies and reinforcements must move to the front in freighters, tankers or transports. Equally vital is maritime traffic going to Japan proper. Japanese industry is concentrated in Manchuria and Japan, but key raw materials such as oil, rubber, tin and bauxite must be shipped from Malaya and the East Indies. Since Pearl Harbor over half of Japan's prewar merchant fleet has been sunk. Now that we have sea and air bases close to the China seas we can turn the enemy's desperate shipping plight into a major disaster.

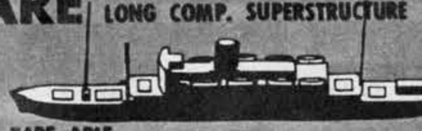
Recognition is at a disadvantage in this supremely important anti-shipping campaign but a good method has been worked out for one phase: telling the enemy type encountered. Known as JMST (Japanese Merchant Shipping Tonnage), it makes possible the reporting of the type, and thereby the tonnage and approximate speed, of any Japanese cargo vessel that may be sighted.

This method of reporting is both simple and systematic. The entire Jap merchant fleet is broken down into four major divisions: freighters, freighter-transports, transports and stack aft types. These are reported under Navy code alphabet by their initial letters; that is, Fox for F (freighter), Fox Tare for freighter-transport, Tare for transport and Sugar for stack aft. Under the general type, the ships are broken down by size from large to small as Able, Baker, Charlie, Dog (ABCD), the size being indicated by the number and position of hatches, masts, kingposts, etc. In the Sugar division, a further breakdown of the main types by size is made by adding Sugar, Love or Item (small, large or intermediate) to the type designation. Thus a small stack aft type having three hatches would be reported as Sugar Charlie Love, one having two hatches as Sugar Charlie Sugar. When the division is known but the type not clear, as for example a freighter-transport of indeterminate size, the suffix Uncle is used (in this case, the report would be Fox Tare Uncle). When the division cannot be determined, the ship is reported as Mike Victor (Merchant Vessel) and the tonnage estimated.

The drawings in the panels at left and right illustrate all types reported under this system. The details listed under each picture are the facts which determine the membership of each group. On the following pages are examples from each division together with their classifications as they would be reported.

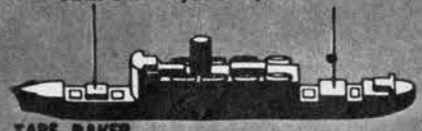
TARGETS FOR CARRIER-BASED STRIKE AT MANILA ARE LARGE AND SMALL SUGAR TYPES IN OUTER HARBOR, FOXES AND A TARE BEHIND BREAKWATER

TARE LONG COMP. SUPERSTRUCTURE



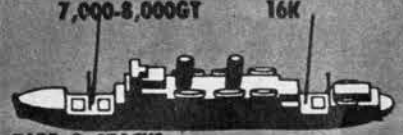
TARE ABLE

Min. of 3 masts or kingposts. 4-5 lifeboats each side. 9,000-12,000GT 14-15K 16½K



TARE BAKER

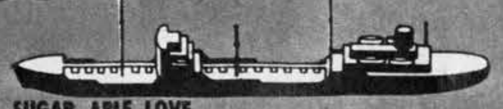
Max. of 2 masts. 4 lifeboats each side. 7,000-8,000GT 16K 18½K



TARE 2 STACKS

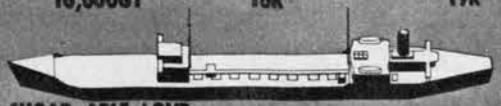
Number of stacks identifies. 4,000-6,000GT 15K 18K

SUGAR STACK AFT



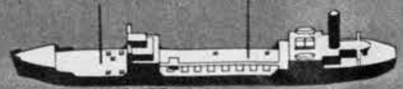
SUGAR ABLE LOVE

Catwalks are fore and aft. Mast is forward. 10,000GT 16K 19K



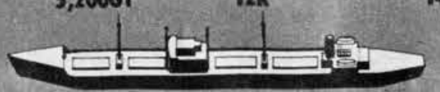
SUGAR ABLE LOVE

Catwalk is aft only. No mast forward. 10,000GT 13K 17K



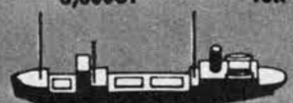
SUGAR ABLE ITEM

Catwalk is aft only. The mast is forward. 5,200GT 12K 14½K



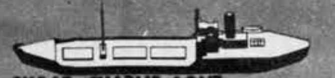
SUGAR BAKER LOVE

No catwalk. Bridge forward. Masts centered. 6,600GT 10K 14K



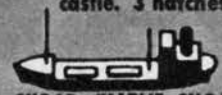
SUGAR BAKER SUGAR

No catwalk. Bridge forward. Mast on forecastle. 1,900GT 10K 13K



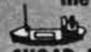
SUGAR CHARLIE LOVE

Bridge aft. Foremast separated from forecastle. 3 hatches. 2,300GT 9K 12K



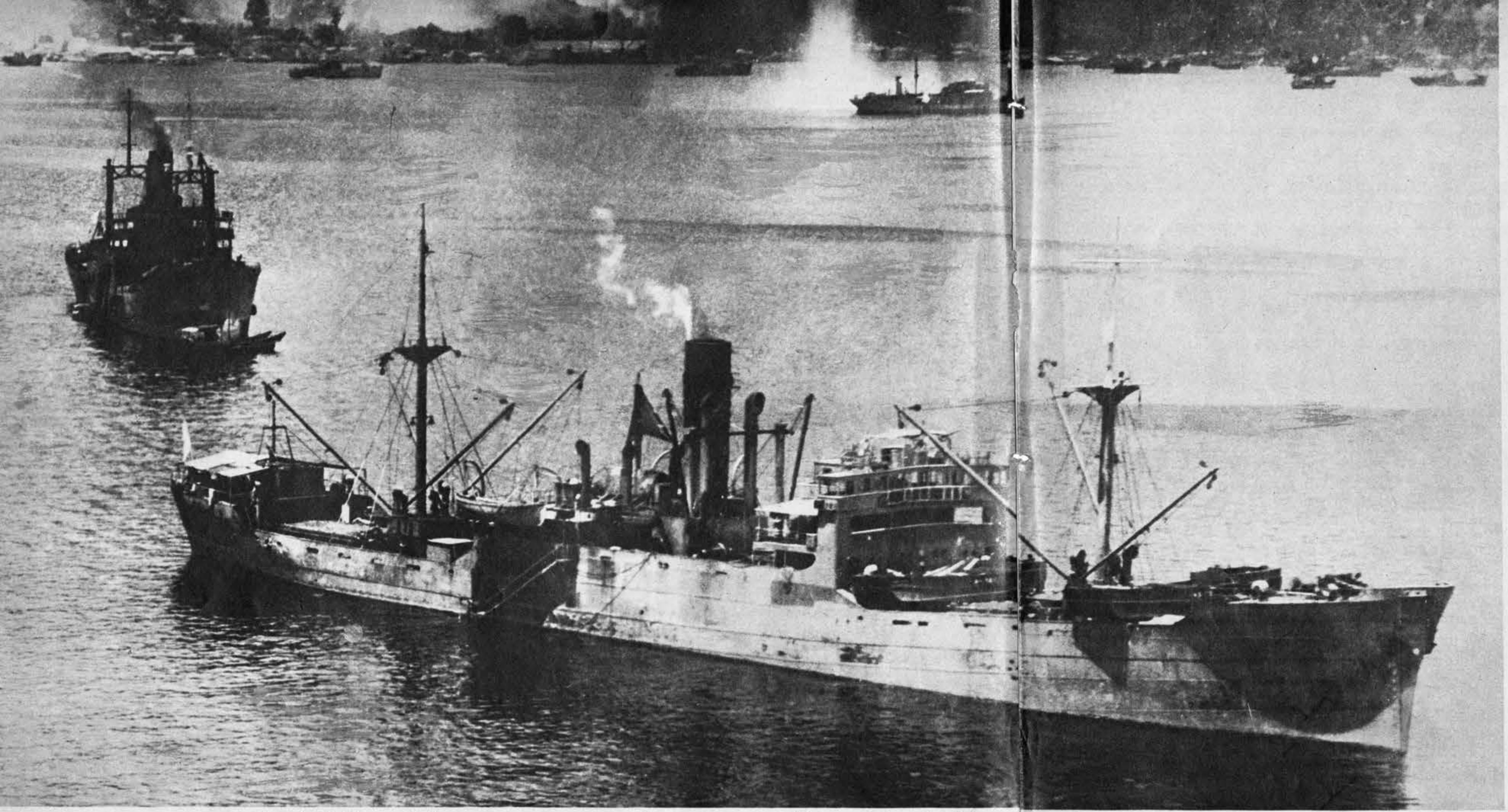
SUGAR CHARLIE SUGAR

Bridge aft. The foremast amidships or on the forecastle. 2 hatches. 300-850GT



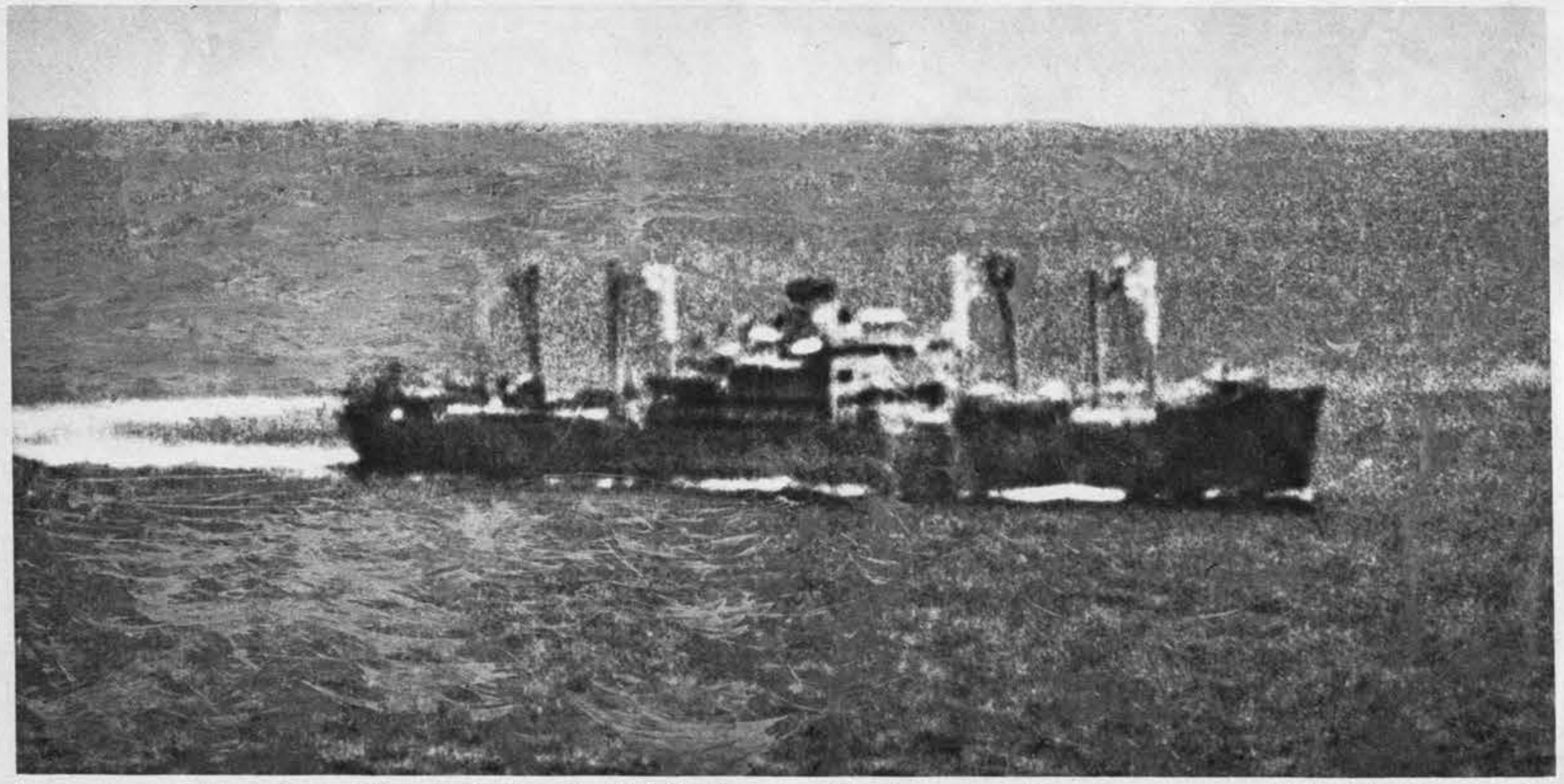
SUGAR DOG

Bridge is aft. Has one mast and one hatch. 70-150GT

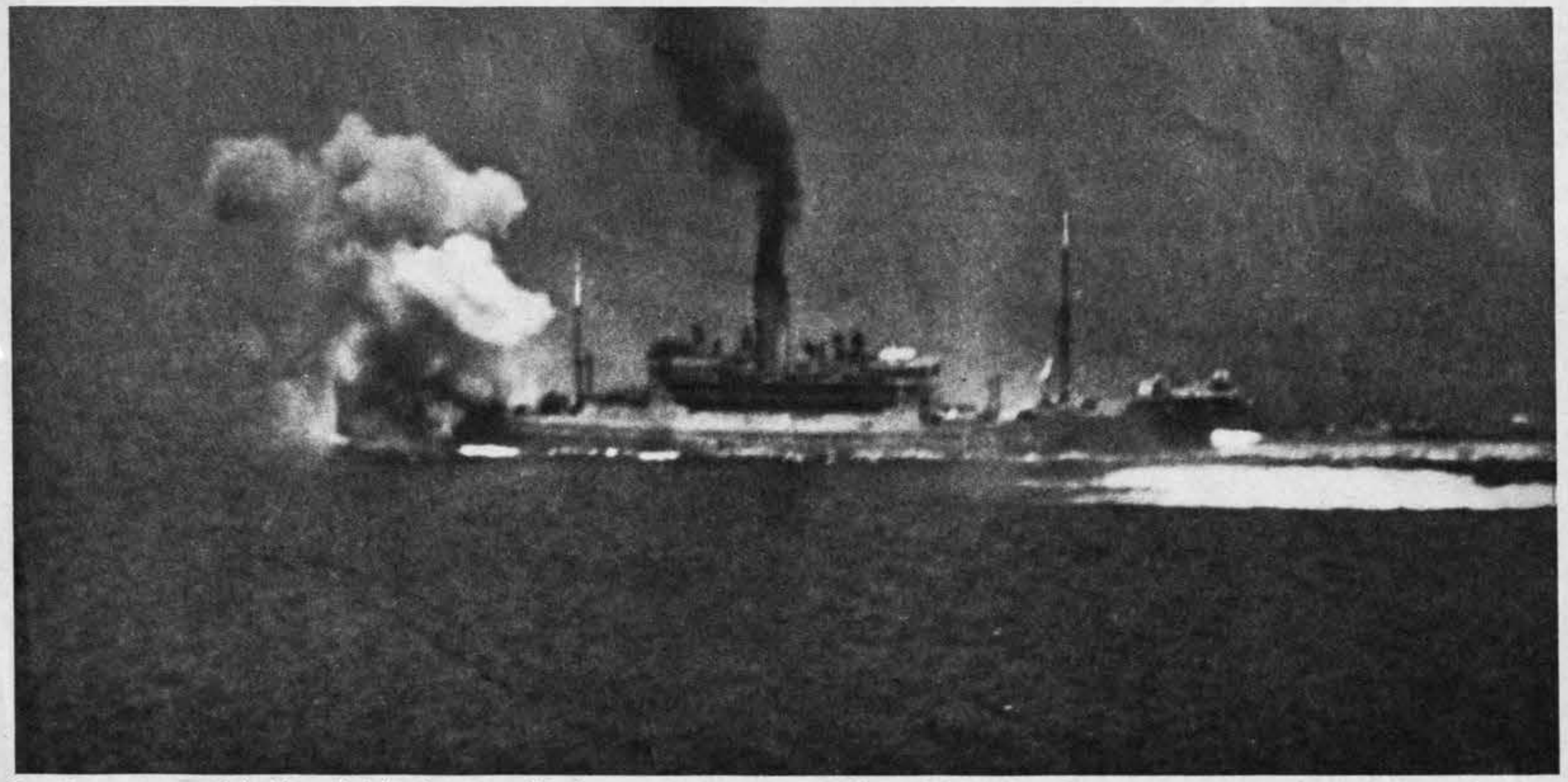


Japanese convoy at anchor in Rabaul's Simpson Harbor can be analyzed quickly by JMST. Split superstructures of cargo ships in foreground mean Fox; two masts, or two kingposts, indicate Fox Baker. Beyond, bomb just misses Sugar Baker Sugar. Stack aft places this old vessel in Sugar division, absence of catwalks and bridge forward narrows it down to Sugar Baker, mast on forecastle adds final Sugar.

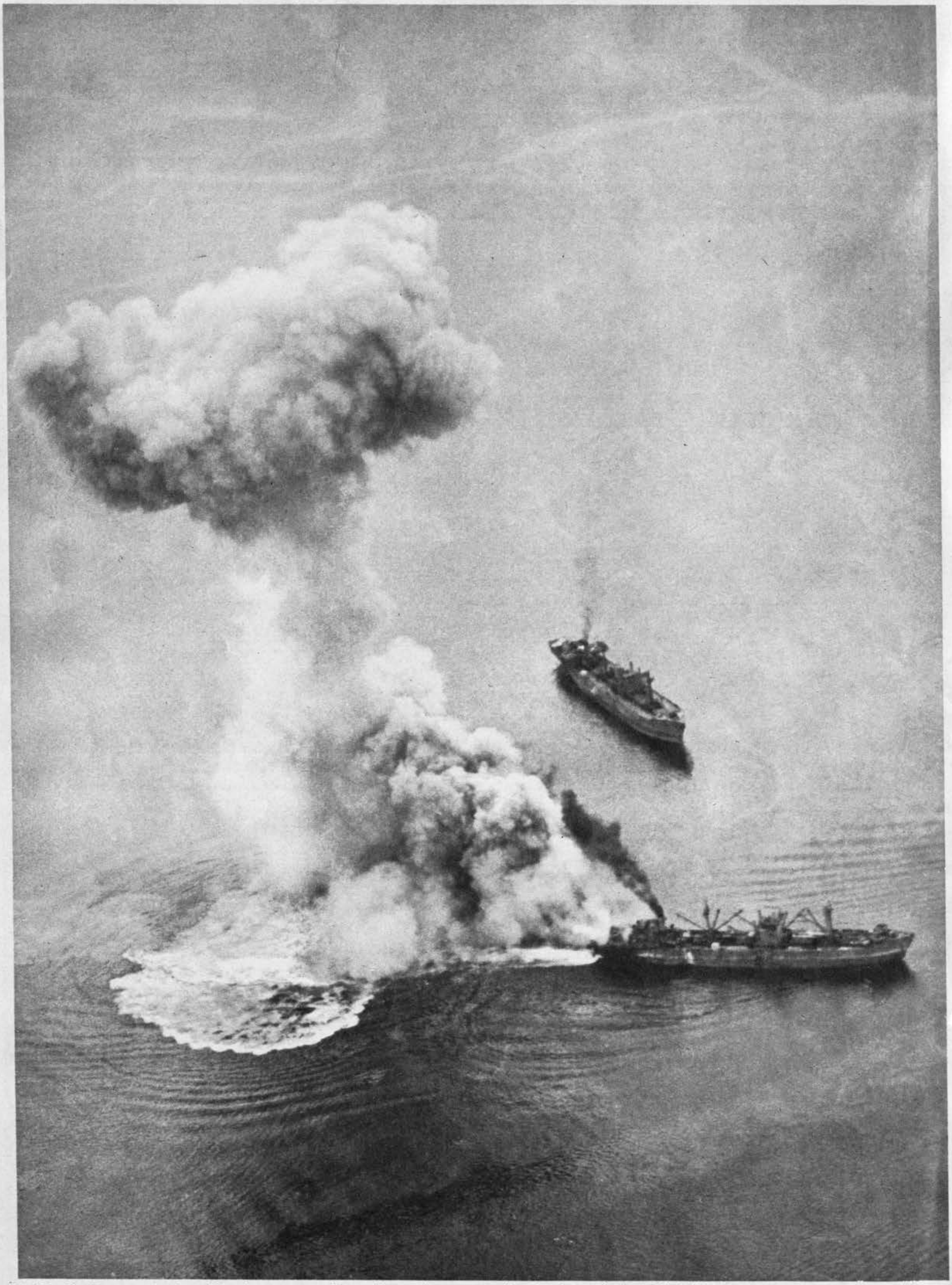
At 7,000 feet, attacking airmen could easily identify this vessel as a Fox Baker by its separated superstructure and four open hatches.



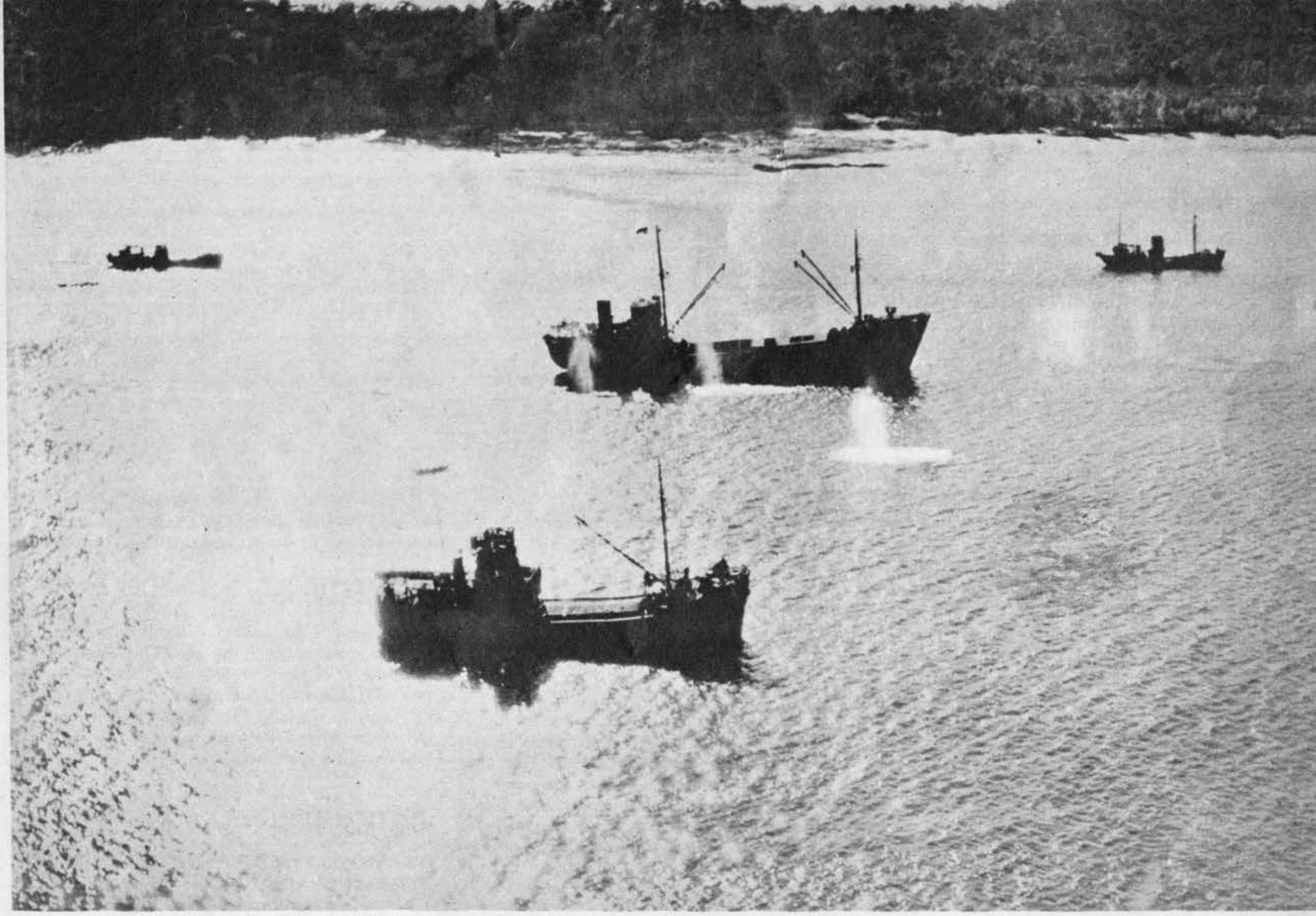
Lone merchant ship circles futilely in duel with PBY which finally set it afire. The PBY would have reported the doomed ship as Fox Tare Able. Short composite superstructure establishes Fox Tare grouping, while the four masts and absence of raised storm decks indicate Able.



Burning transport is in Tare division because of its long, composite superstructure one third the ship's length. Attackers would recognize it as Tare Able by short kingposts between superstructure and masts. Ship is of the 10,420-ton Hakone Maru class, verifying JMST report.

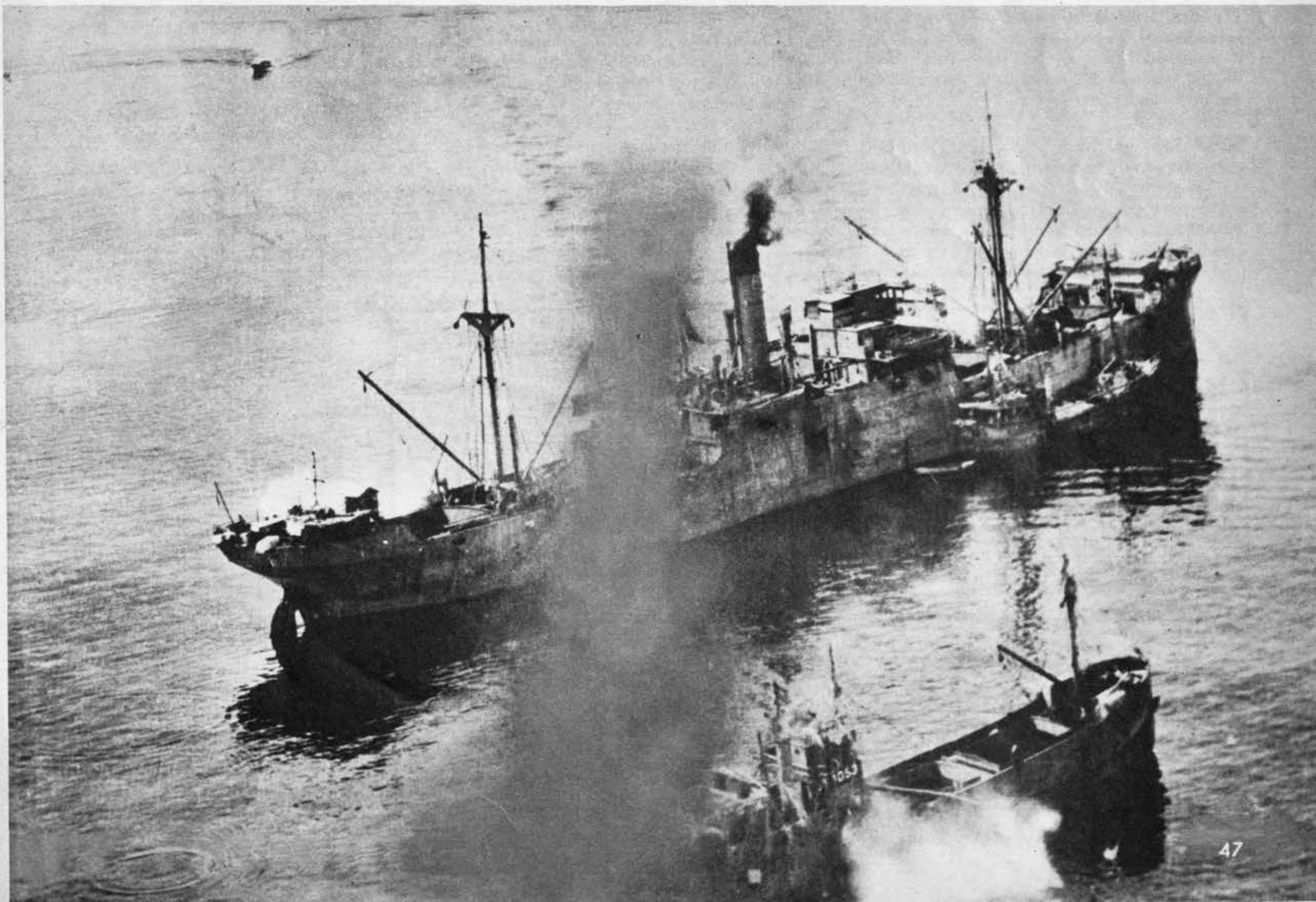


In Manila Bay, carrier-based bombers score a direct hit on the stern of stack aft freighter. Both vessels are in the Sugar Baker subdivision (hatches instead of catwalks). Masts are centered between hatches, instead of on forecastle and bridge, making ships Sugar Baker Love.



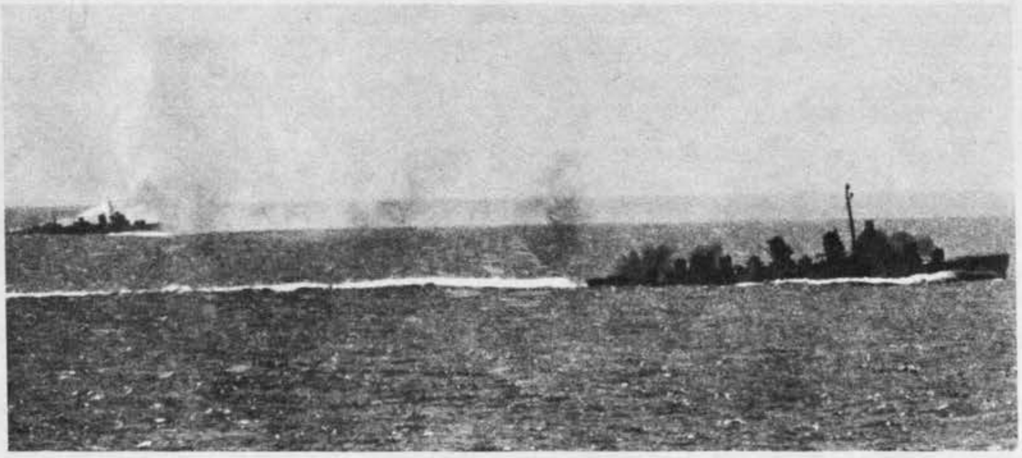
Bridges set aft identify craft caught by U. S. bombers as small Sugars. Two masts, foremast on forecastle, long hold indicating two hatches mark larger vessel as Sugar Charlie Sugar. Closer ship is a Sugar Dog.

Aerial close-up (*below*) shows Sugar Dog (one mast, one hatch) nestling against Fox Baker (split superstructure, four hatches, two masts). Two hatches identify the small vessel at bottom as Sugar Charlie Sugar.



NEWS & MISCELLANY

NEWS


GUN HOUSES AIMED BROADSIDE, A FLETCHER (RIGHT) CLOSES IN ON A CRIPPLED TAKANAMI DD

Luke 11, single-seat navy interceptor fighter, marks a new, unorthodox turn in Jap plane design. It is described as a "single-engine, twin-fuselage pusher." Manufactured by Mitsubishi, Luke 11 may be in limited production and may be operational in the next few months. Its "emergency" speed is said to be well over 400 m.p.h., while rate of climb is estimated to be 9.7 minutes for 26,248 ft.

Rex 11, floatplane fighter, is said to have a top speed of around 350 m.p.h. at 9,515 ft. and can climb to 19,686 ft. in 6.5 minutes. Span is 39–40 ft.: length, 35 ft., 5 in.

Grace 11, new torpedo plane, has span of 47 ft., 3 in., length of 37 ft., 7 in. Maximum speed is around 350 m.p.h.

Liz 11's span and length have been revised to 138 ft., 3 in., 101 ft., 9 in. respectively.

Frank 1 has laminar-flow wings with removable tips 20 in. from the ends, the first laminar airfoils found on an operational Jap plane. Frank is now reported to have a span of about 37 ft. and top speed of 422 m.p.h. at 22,000 ft.

FW-190G has been modified to allow a torpedo to be carried.

Me-109H has been reported to be fitted with DB-603 engine and has enlarged tail surfaces. It is also believed to have increased performance.

Oyodo, new Jap CL class, has two triple turrets forward, its complete main battery. It has a prominent hangar abaft the stack. Hull, bridge, foremast and raked stack are similar to Agano Class.

New Jap merchant ships, both standard cargo types and tankers, generally are following stack aft designs. They range in size from 6,670 tons down to 830 tons, except for the 10,000-ton standard tanker and average several knots less than standard prewar designs.

Building for capacity rather than speed, the Japanese are concentrating on ships with broad beams. Their angular hull shapes make for more rapid construction. Recognition features include prominently raked bows in profile, pointed bows and usually squared-off sterns in plan view.

Porter Class DD's are being rebuilt to provide increased antiaircraft defense. The main battery will fall into a 1-A-2 arrangement of enclosed gun mounts, with twin guns in Nos. 1 and 3 and a single in No. 2. AA guns are being added between the No. 1 mount and the lower, more streamlined bridge. The stacks, too, are being lowered and have new caps. A stick mainmast is being added just aft of the torpedo battery.

ANNOUNCEMENT

CNO, Op-33-D1 will distribute two new Device 5-DD films—one on planes, the other on ships—this month. These films contain close-up and mid-distant views of U. S., British and Japanese war craft and some Russian planes. Each activity having cognizance over a unit of Device 5-DD should write immediately to CNO, Op-33-D1, Navy Building, Washington, D. C., requesting the desired number of films so that the manufacturer can be notified as soon as possible of the number of prints to be made.

CORRECTIONS

The Warwick on page 12 of the November 1944 *Journal* is the I, not the III. Silhouette on page 17 of October 1944 issue is the Warwick III, transport, not air-sea rescue version. The ship on the left of the top picture on page 18 of the December 1944 *Journal* is a subchaser, not a minesweeper.

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QUIZ ANSWERS

QUIZ NO. 1

1. Farragut Class DD
2. Cleveland Class CL
3. Northampton Class CA and LCI's
4. New Mexico Class BB
5. Dido Class CL
6. H.M.S. Warspite
7. Iowa Class BB

QUIZ NO. 2

1. U.S. M-4
2. U.S. M-8 armored car with ring mount
3. British Cromwell
4. Japanese light tank, Model 2595
5. U.S. M-24
6. U.S. M-18
7. German PzKw V Panther
8. U.S. M-4
9. British Universal Carrier

QUIZ NO. 3

1. B-24's
2. Barracuda
3. Betty
4. Wellington
5. PB2Y-3
6. PV-1
7. Frances
8. B-25
9. PB4Y-2
10. TBF's
11. SB2C's
12. B-29
13. A-20

QUIZ NO. 4

1. Rufe
2. F6F
3. SB2C
4. Mosquito
5. TB-7
6. Sea Otter
7. Lancaster
8. Stirling
9. La-5
10. P-51D
11. Mavis
12. L-1
13. Pe-2
14. P-47
15. Helen

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16—Second row right, George Rodger; third row left, Associated Press; fourth row left, Robert Capa
17—Bottom, Grumman Aircraft Engineering Corp.
24-25—International
33—Top right, Carl Mydans
51—Fifth row center and right, International

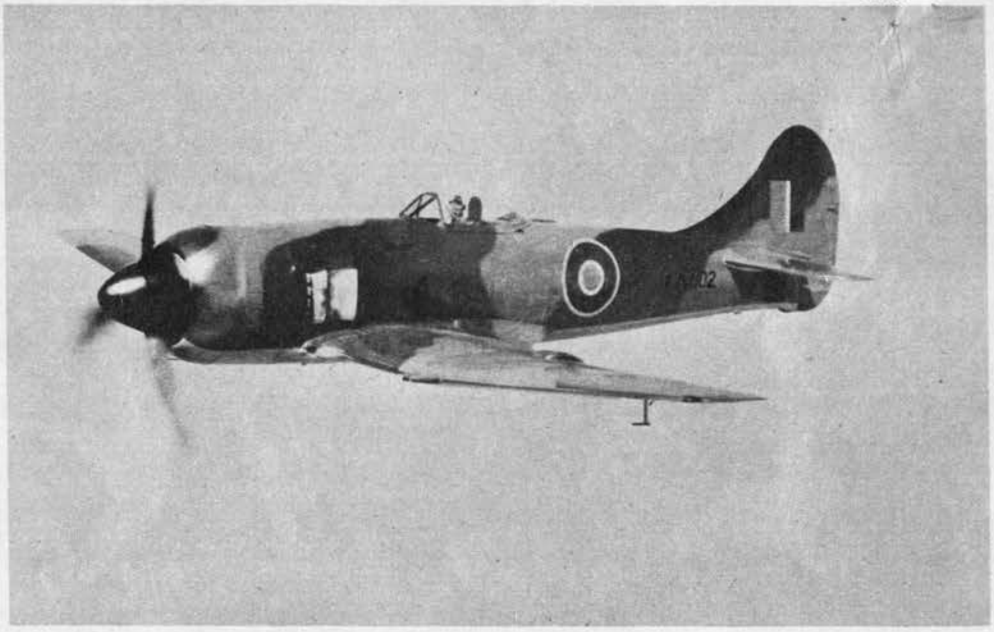
The pictures used in the *Journal*, unless otherwise specified (see above) came from the Allied Armed Services

This month's cover, an official Navy photograph, shows the Japanese CVL Zuiho off Luzon. Bombed by U.S. Navy airmen on Oct. 24, its flight deck has buckled from internal explosions.

TEMPEST II

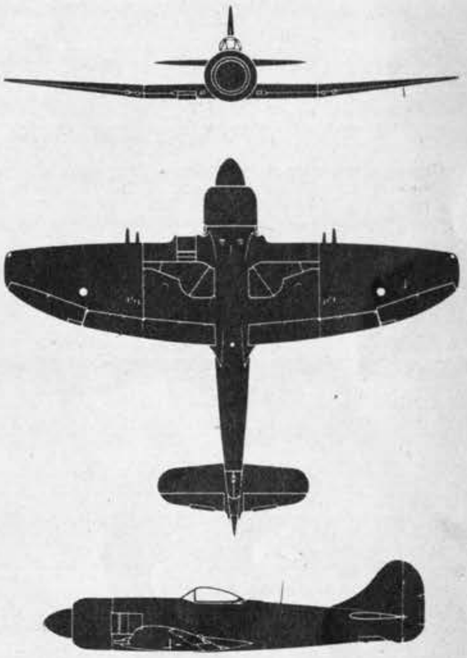
FIGHTER

U. K.



DISTINGUISHING FEATURES: Tempest II is a single-engine monoplane. Low wing has a straight inboard panel, with dihedral outboard. Wing is semi-elliptical in shape with blunt tips. Flat curve of the leading edge is broken by air-intake projections of different size on each side of fuselage. There are slight fillets at the rear wing roots. Nose is round from head-on and cylindrical in beam view. Spinner is very large. Long, trim fuselage has bubble-type cockpit canopy. Fin and rudder is smoothly rounded and fairs forward in shallow curve. Rudder projects below fuselage. Tailplane has rounded tips, and moderate taper on both edges.

INTEREST: New version of Britain's Tempest design, the Mark II differs from the V mainly in its redesigned nose. This is long and cylindrical to house the Bristol Centaurus radial engine. The Hawker-built Tempest II is the first RAF fighter to have an air-cooled engine since the Gladiator biplane went out of service in 1940. Four 20-mm. cannon are mounted in the wings.



SPAN: 41 ft.
LENGTH: 34 ft., 6 in.
APPROX. MAX. SPEED:
SERVICE CEILING:

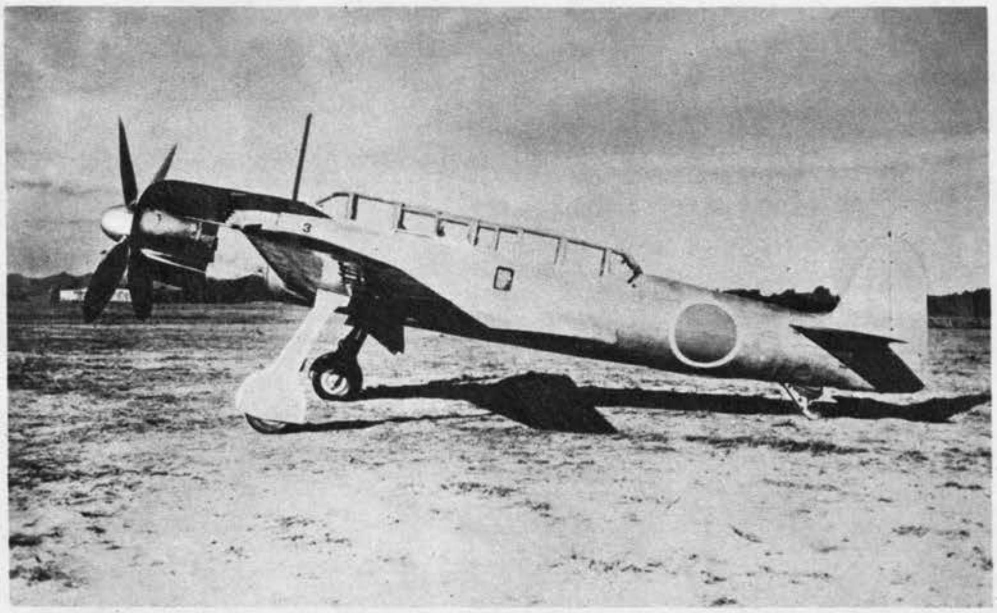
RESTRICTED

NOTE: **This page is to be cut along dotted lines (*above and below*), added to the proper nation's section in the Recognition Pictorial Manual. The dots indicate perforations.**

MYRT 11

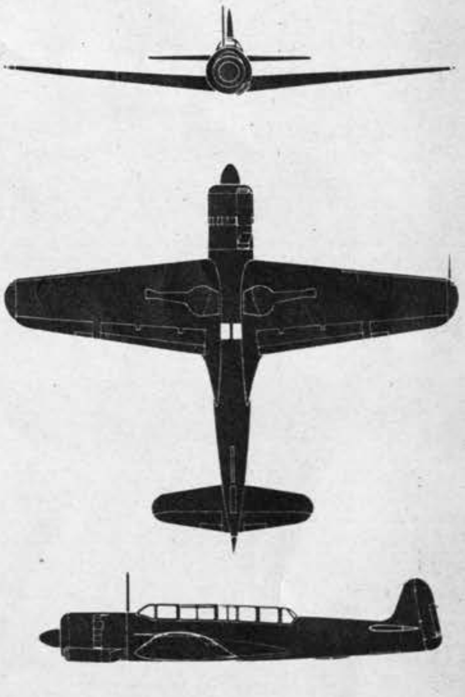
RECONNAISSANCE

JAPAN



DISTINGUISHING FEATURES: Myrt 11 is a single-engine, low-wing monoplane. Wing has a slight dihedral from the roots. Equal, even taper on both wing edges to rounded tips is repeated in the tailplane design. There are very shallow, extended fillets at the rear wing roots. Nose is long and cylindrical with a prominent air intake on the lower port side. Spinner is moderate-sized. A low, extended three-man greenhouse is mounted on the long, slim fuselage. Blunt-tipped fin and rudder is rather small and raked forward.

INTEREST: With its 2,000-hp. Homare-21 engine, Myrt 11 continues the Japanese policy of high-performance aircraft designed especially for reconnaissance. Since Myrt relies on its high speed to escape Allied interceptors, there is no armor protection and armament consists of only one 7.9 machine gun mounted in rear cockpit. It may carry a 1,760-lb. torpedo. Carrier-based, Myrt is credited with a normal range of 1,800 miles, increased to 2,600 by fuel overload. A transparent "photograph bay" is set in the belly.



SPAN: 41 ft., 1 in.
LENGTH: 36 ft., 6 in.
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SERVICE CEILING: 34,000

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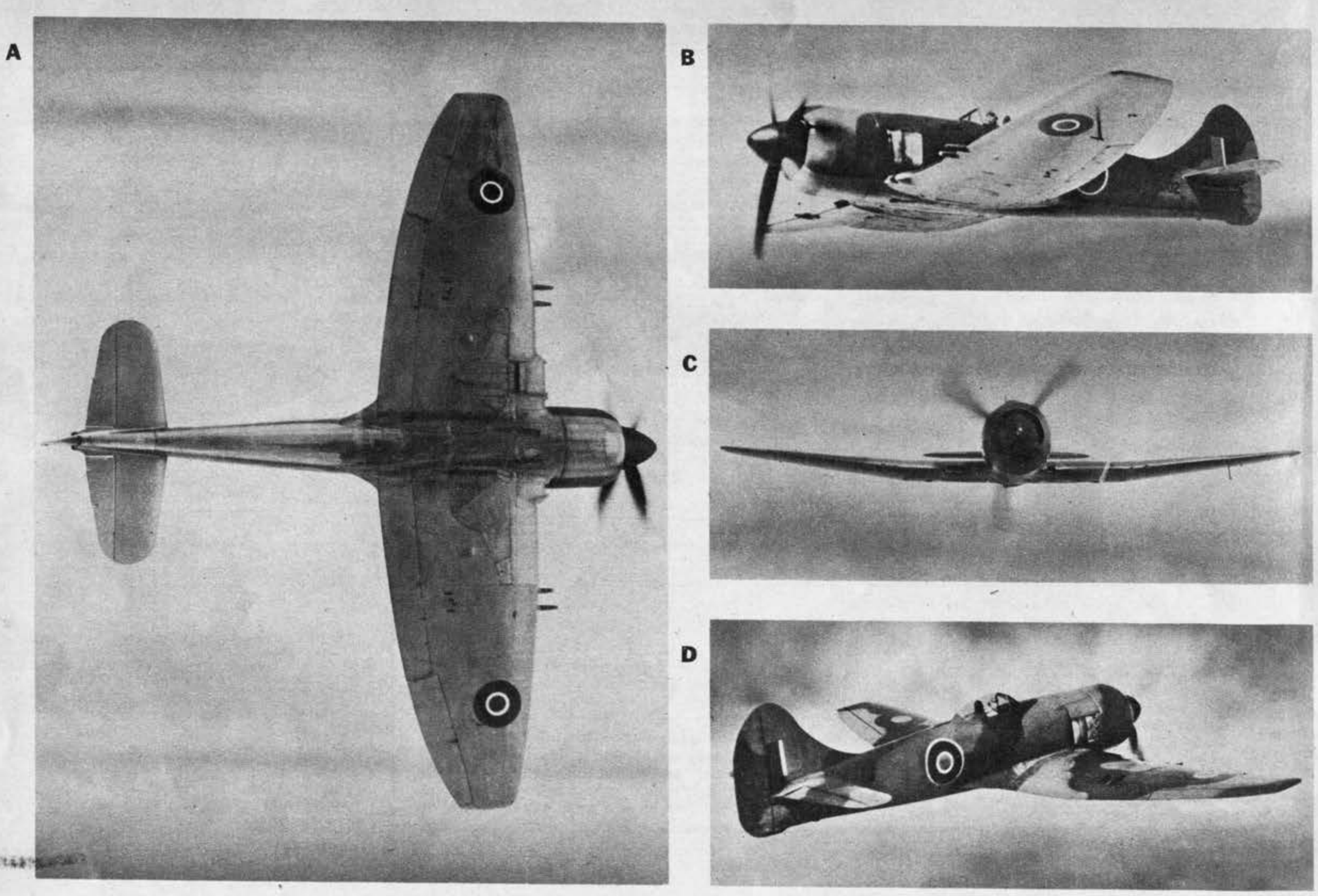
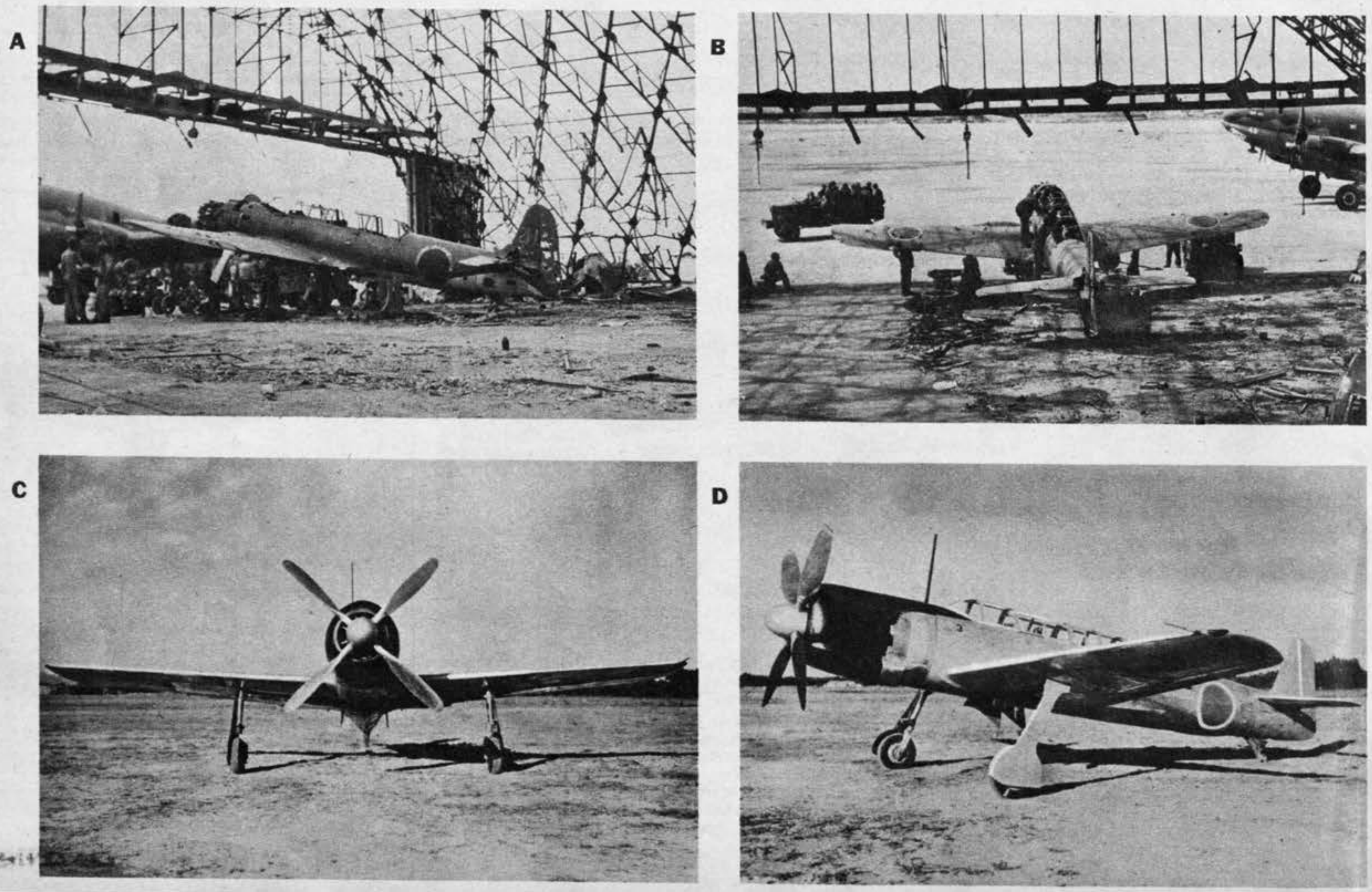


TEMPEST II lacks bulging radiator intake which marked Tempest V and Typhoon. However, the II's new radial power plant has a distinctive feature—the uneven arrangement of air intakes in the wing roots. Bubble-type canopy is the same as on Typhoon.

MYRT 11 has a slim nose in spite of its powerful engine. The Nakajima-built Homare 21 is very compact, measuring only 46.5 in. in diameter. With their usual tendency toward poetical names, the Japanese have christened Myrt "Saiun" or "Painted Cloud."



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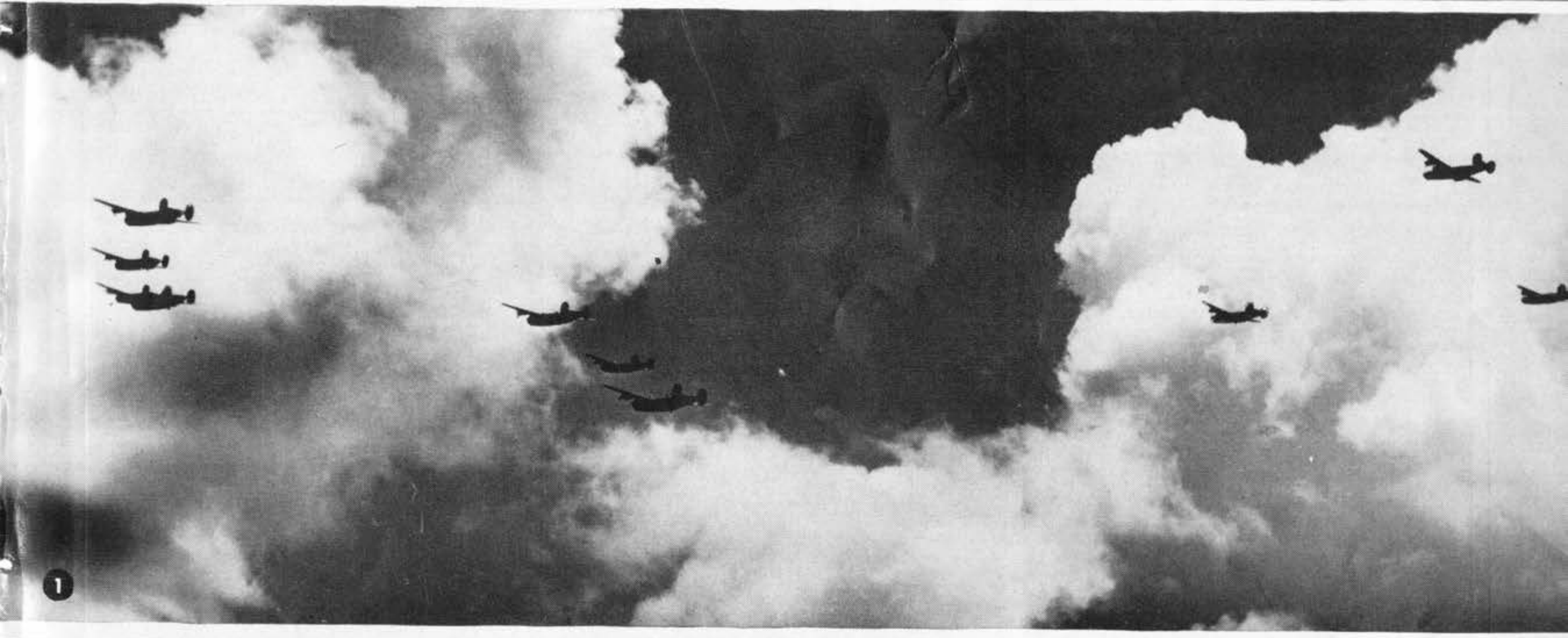
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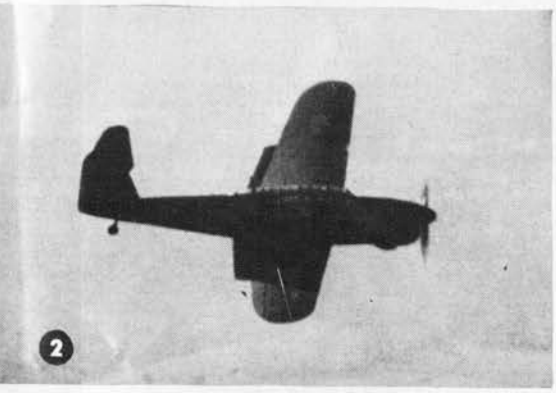
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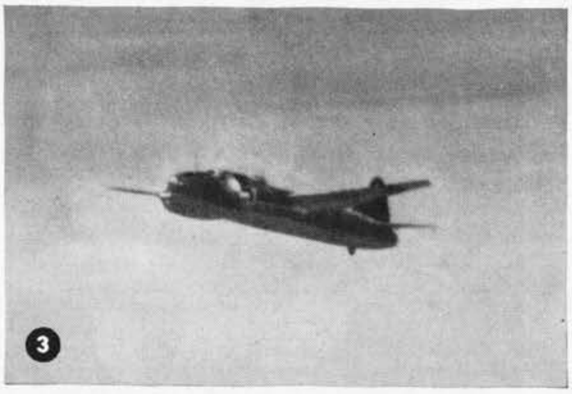
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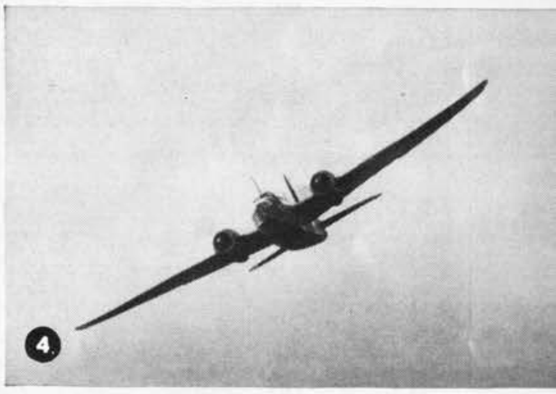
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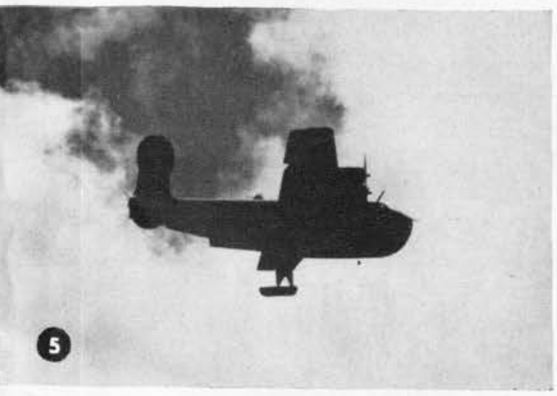
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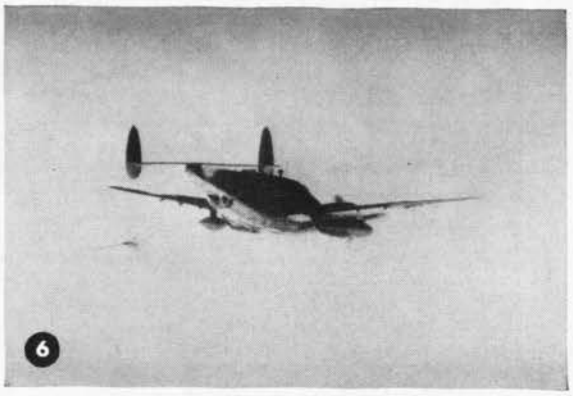
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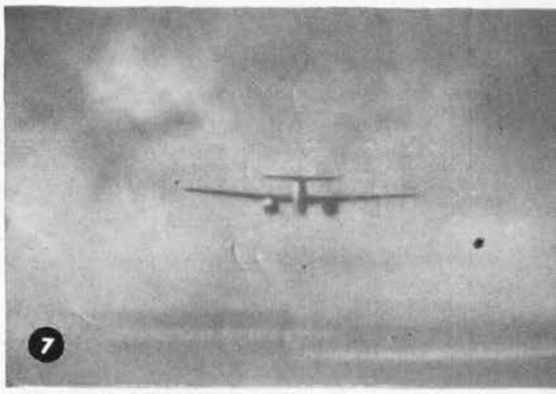
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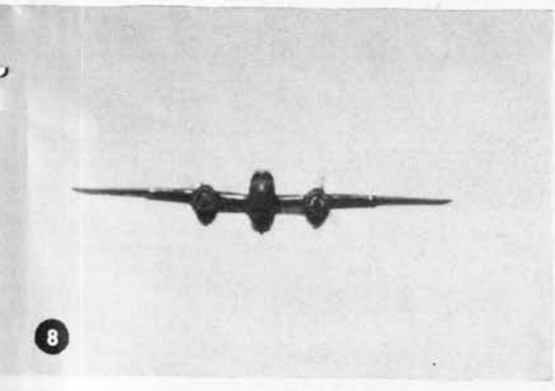
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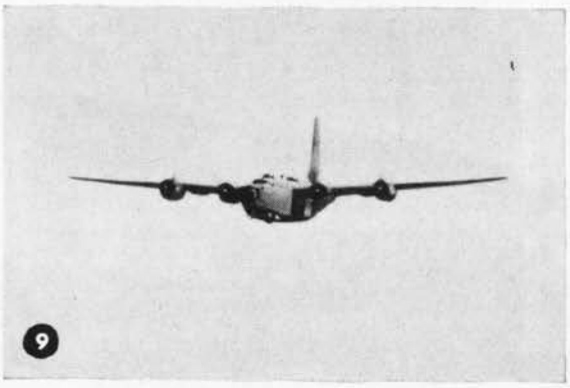
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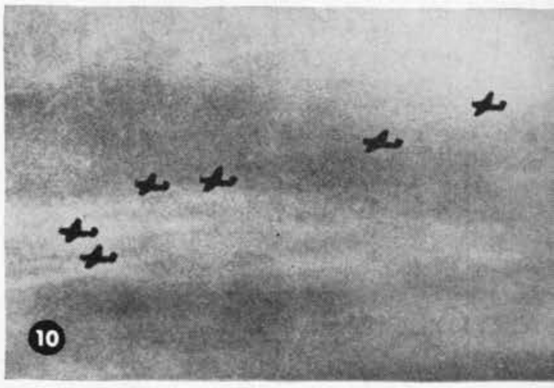
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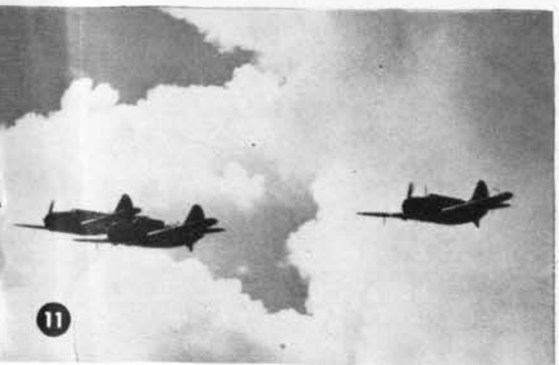
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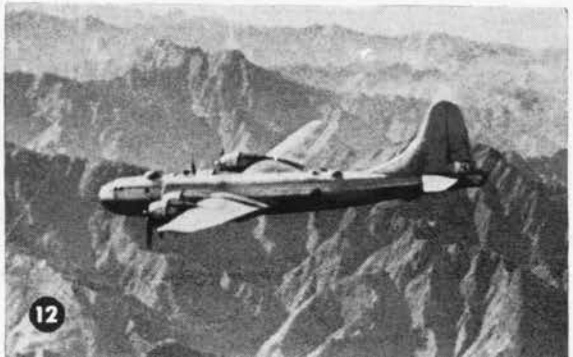
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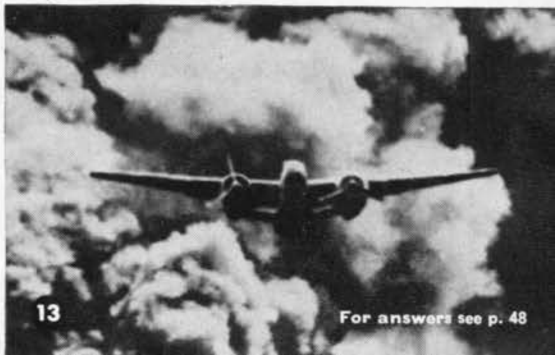
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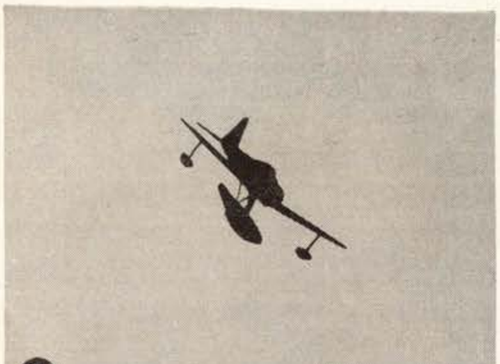
QUIZ NO. 4: THIS MONTH'S SILLOGRAPHS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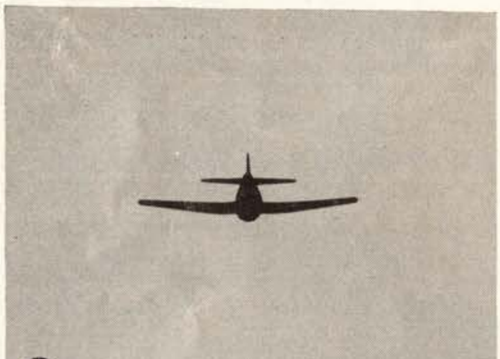
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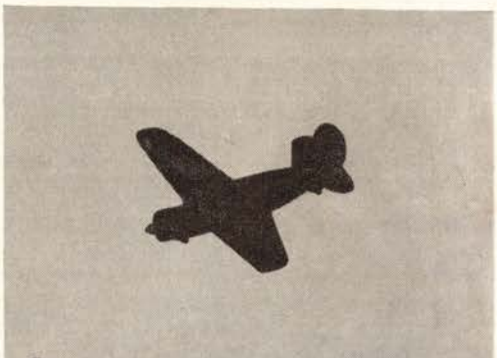
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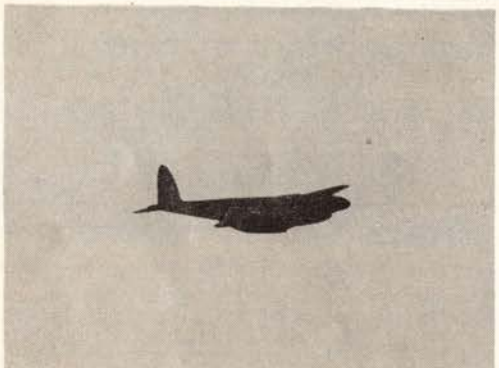
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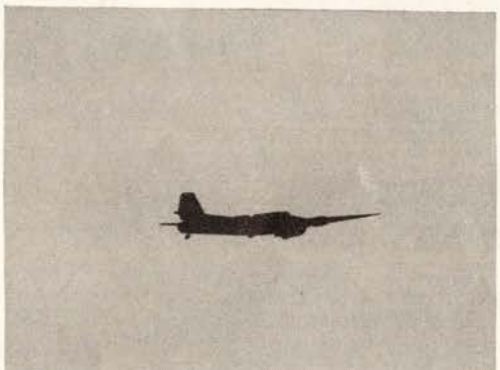
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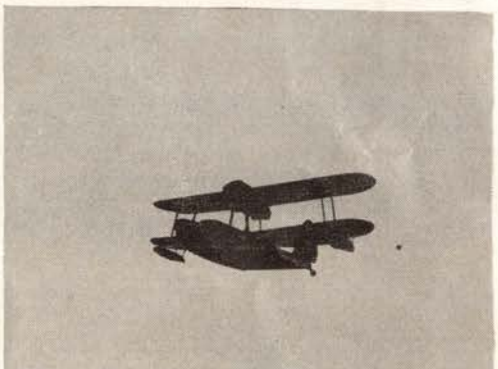
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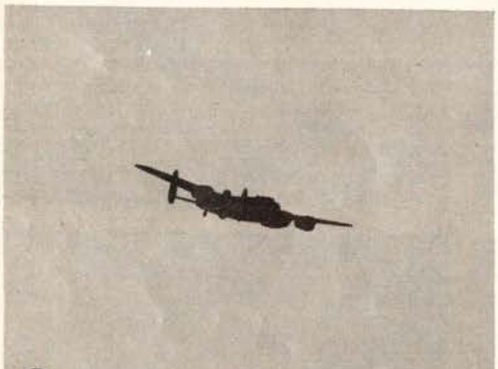
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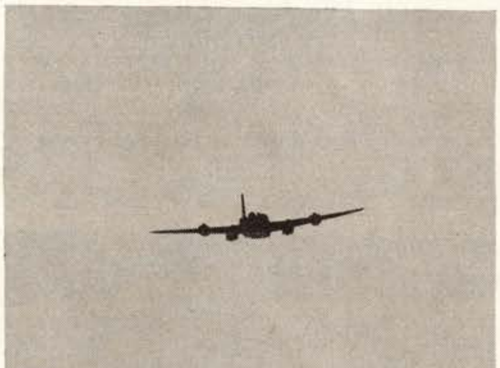
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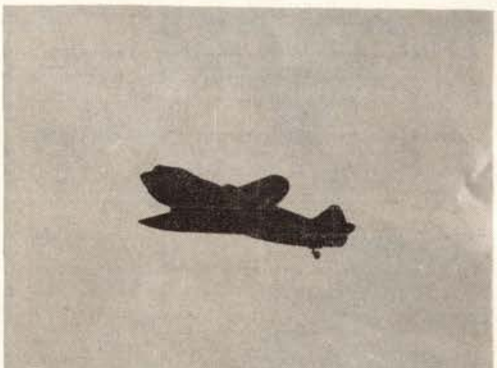
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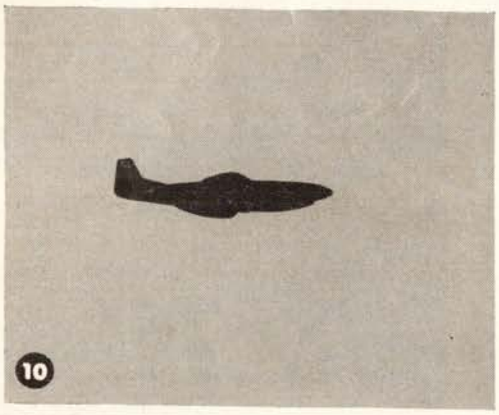
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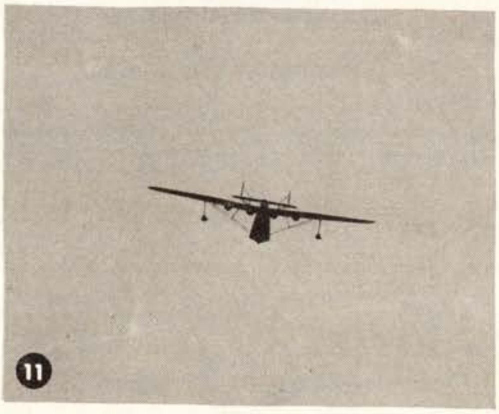
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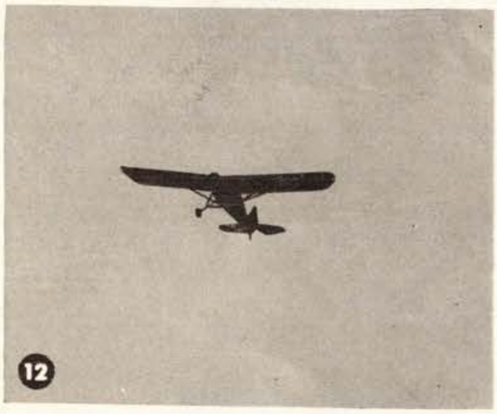
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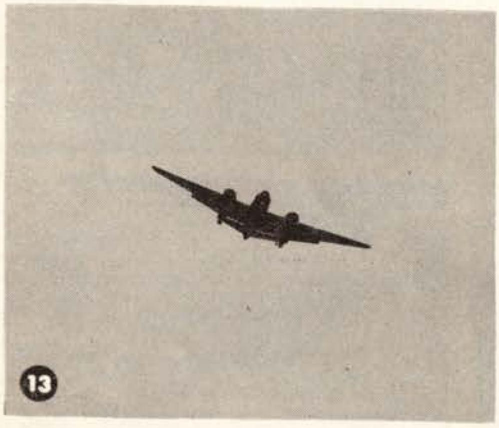
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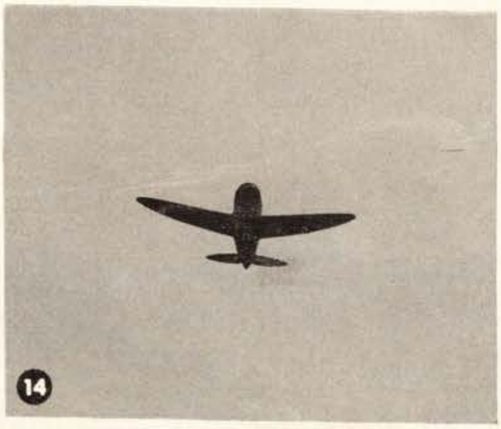
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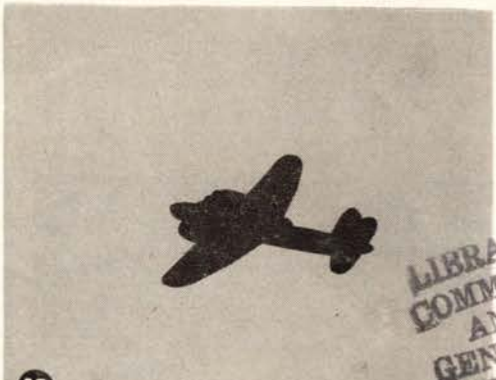
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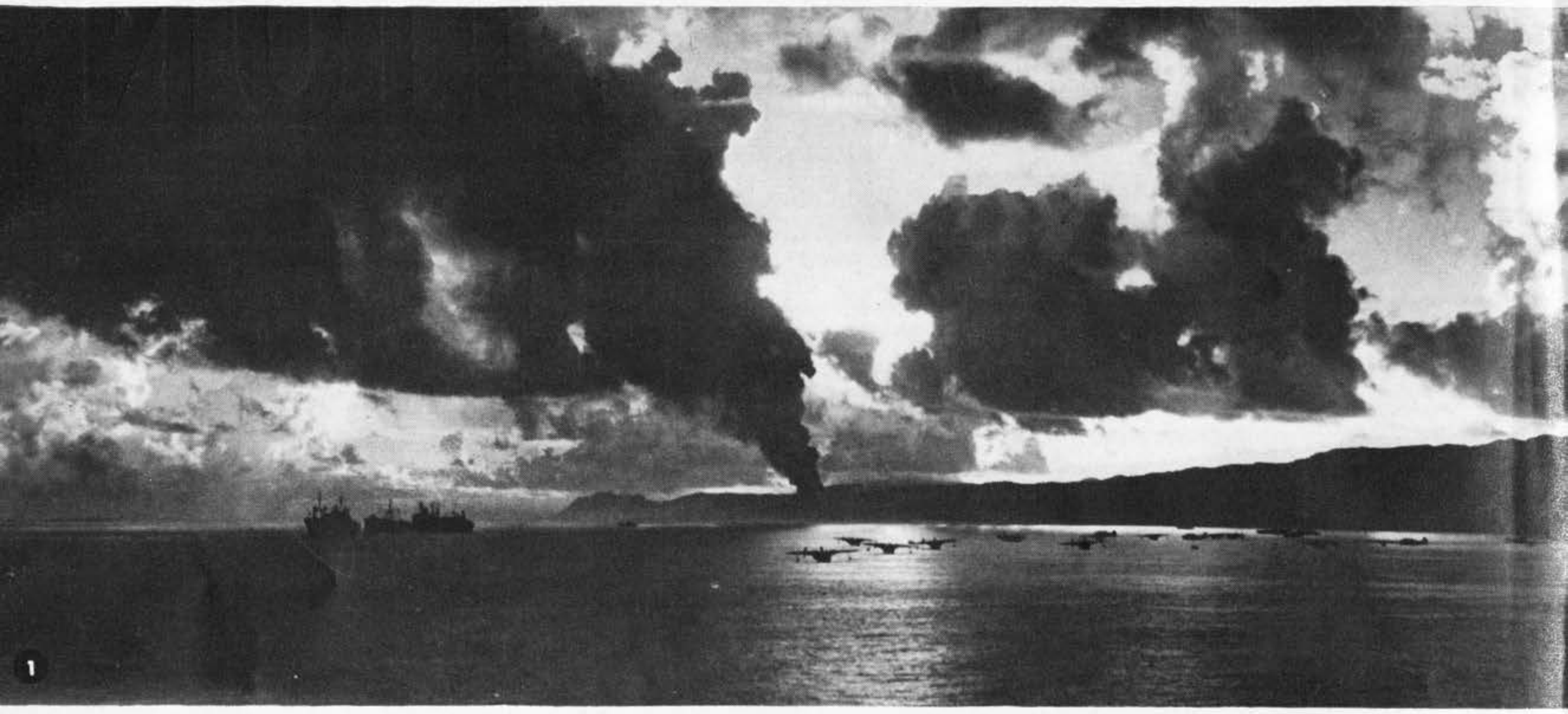
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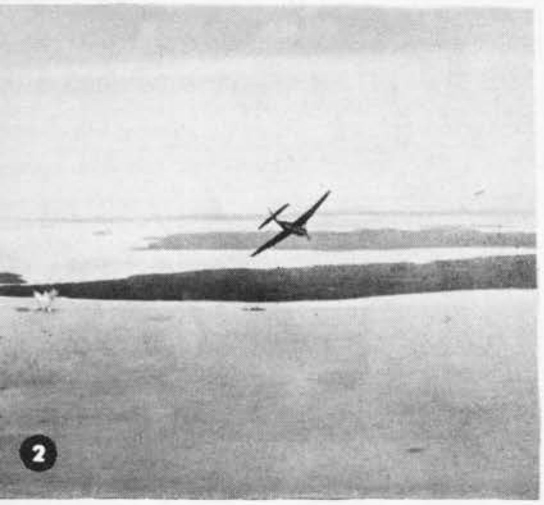
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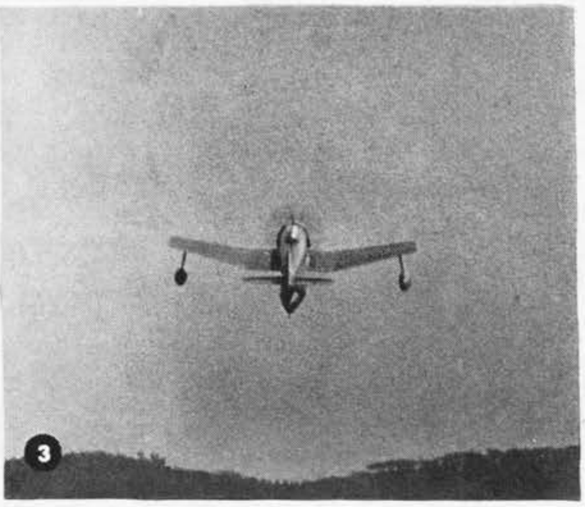
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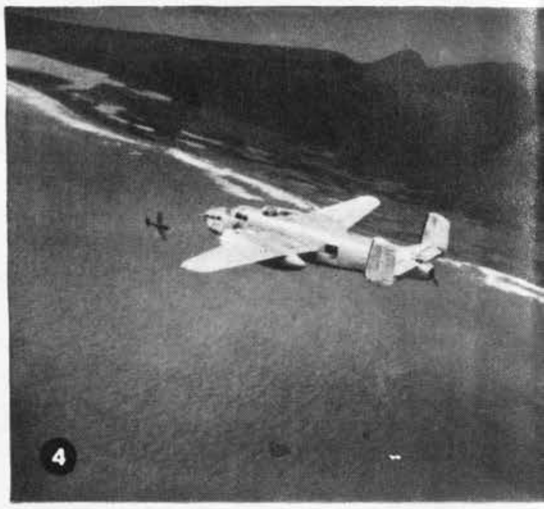
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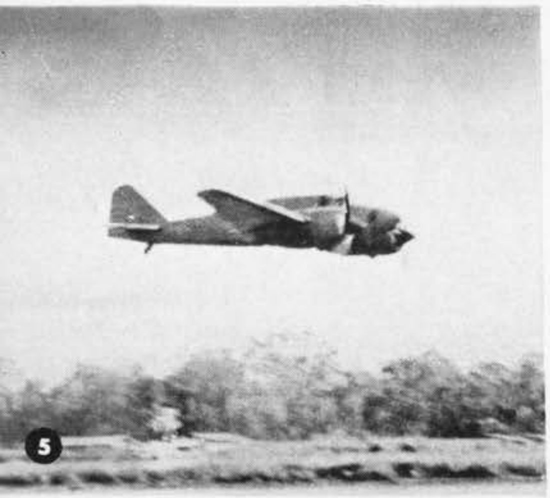
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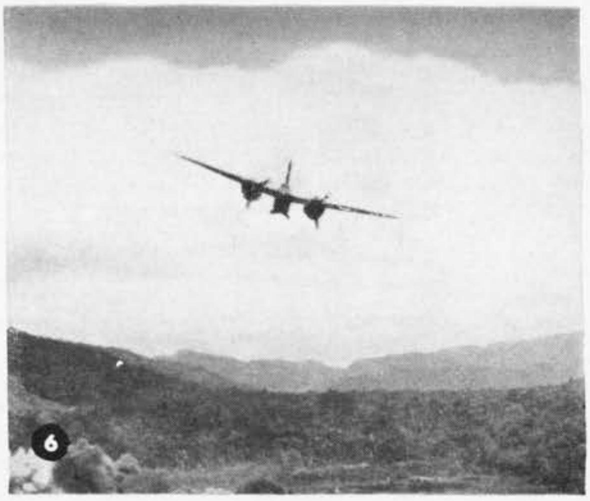
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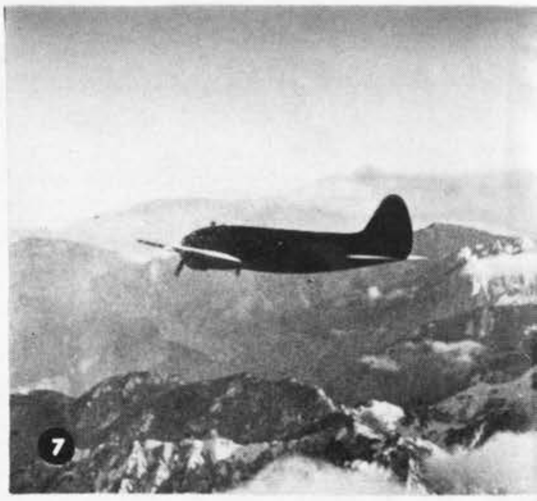
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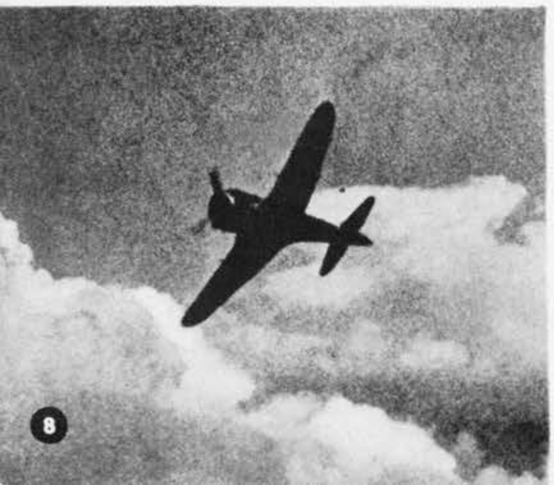
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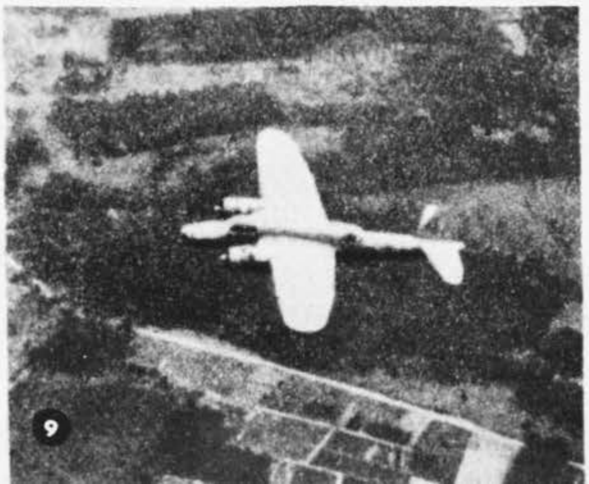
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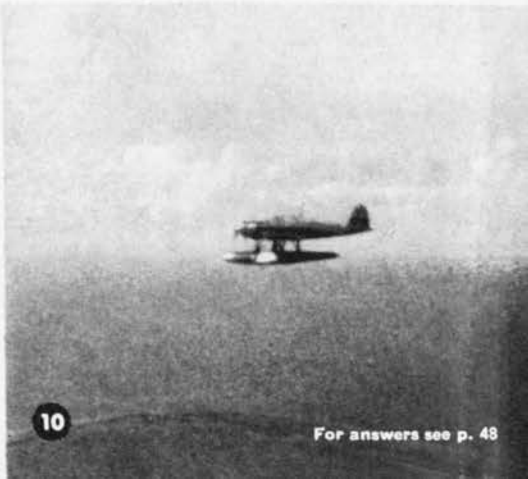
10

For answers see p. 48

NUMBER 18

RECOGNITION
JOURNAL

FEBRUARY, 1945

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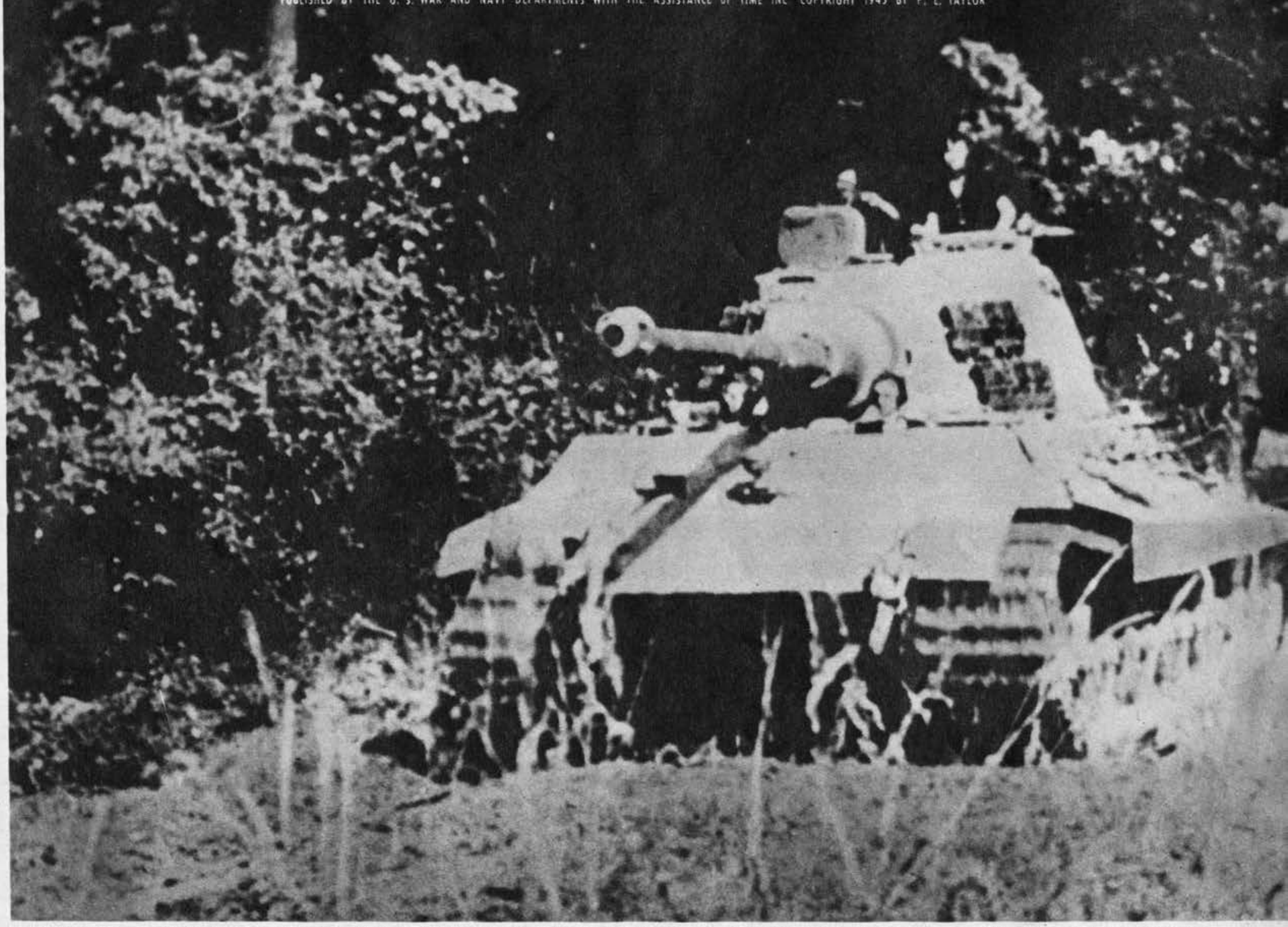


THE ENEMY'S MOST POWERFUL AND HEAVILY ARMORED TANK, THE KING TIGER CARRIES A HIGH-VELOCITY 88-MM. GUN, UP TO 12-IN. OF ARMOR

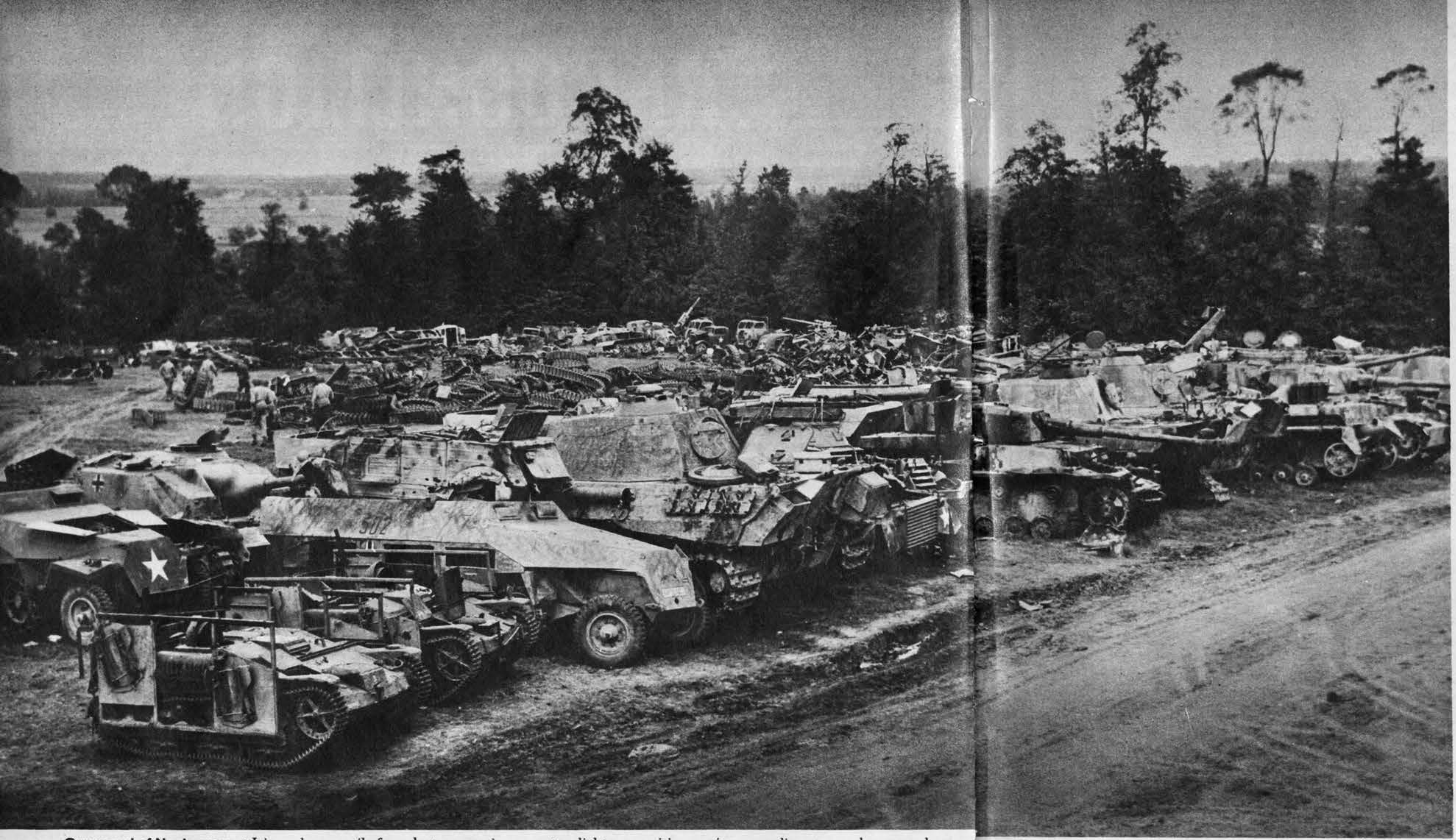
THE ENEMY'S WALLOP

The world's first great tank army has once again proved itself a master of armored force. Though the Wehrmacht had been rolled back through Africa, up the Italian peninsula and across France by superior Allied forces, in its time of decision it struck back viciously to defend its homeland. To the peoples of the anti-fascist nations it brought the most doleful Christmas week since the war began.

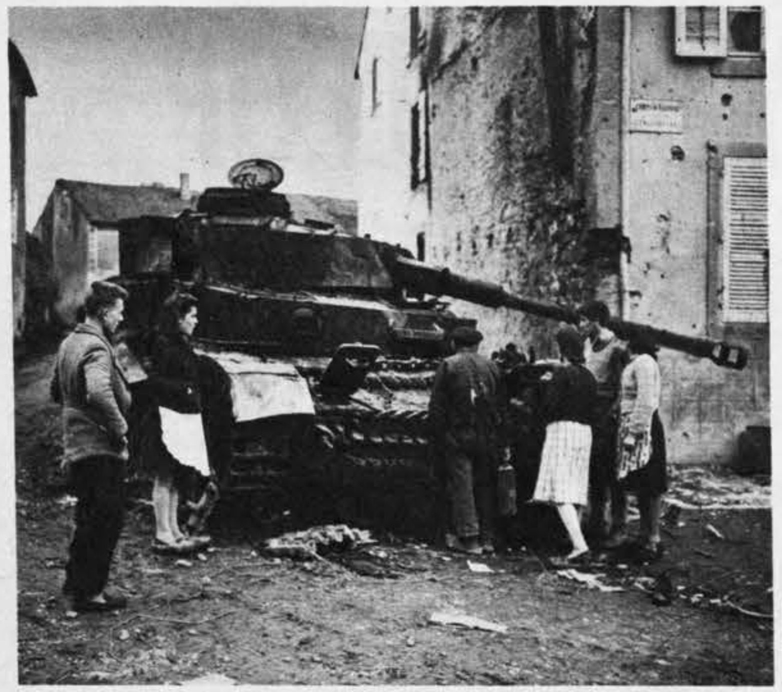
Under the cover of thick winter weather, Field Marshal Gerd von Rundstedt amassed the choice divisions of his depleted reserves, both armored and infantry, to strike at the attenuated Allied lines along the Roer. Hitting between Bradley's First and Third Armies, as the Americans lay readying themselves for the river crossing, the Nazis drove through toward Arlon, Sedan and Liège in a fanning salient. As the year ended the drive had been slowed, but the battle for the Roer was still crucial.

At the forefront of the Nazi drive was the most impressive armored battle line thrown into any combat the world has seen. The spearhead was made up of three great heavy tanks, the King Tiger, the Tiger and the Panther, and a fine medium, the Mark IV, while the support included a variety of tank destroyers and assault guns. These weapons in general displayed a weight of armor much greater than that on Allied vehicles. The new 75-ton Königstiger normally carries six inches of steel plate on its bow but some models were encountered with turret facings twelve inches thick. The older Tiger was also found with reinforced armor while almost all vehicles carried plaster protection against magnetic mines and grenades. Guns ranged in size from 75 to 150 mm., many with extremely high muzzle velocities.

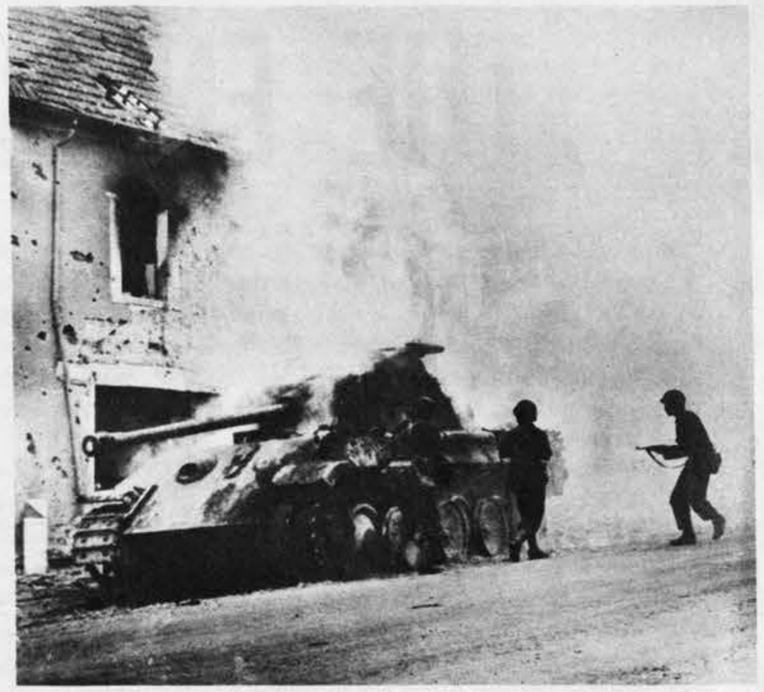
As the imminence of Germany's collapse remains uncertain these weapons will be important. To be destroyed they must be spotted quickly. The line-up displayed on following two pages must be as familiar to Allied soldiers as our own M-4, M-18 and M-36.



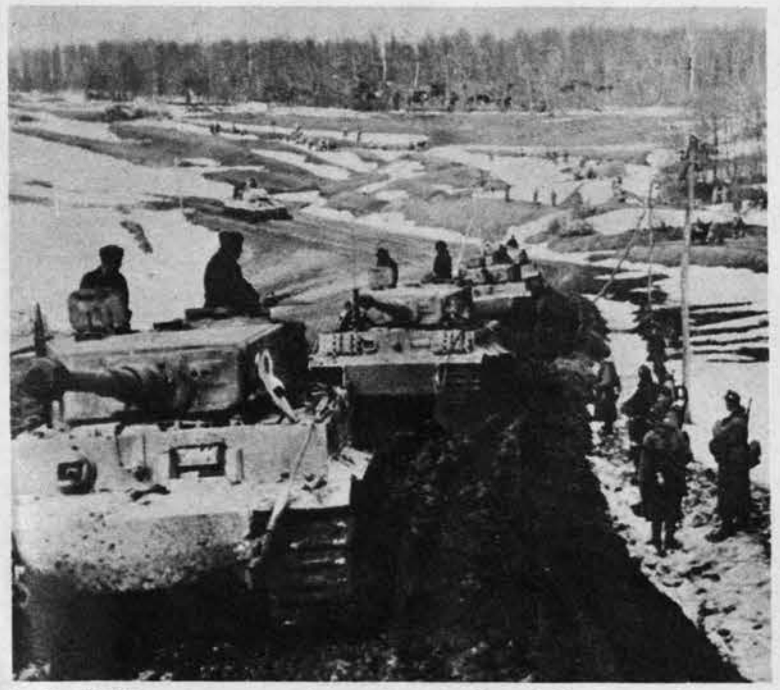
Graveyard of Nazi armor at Isigny shows spoils from last summer's Normandy campaign. Recognizable vehicles in front row (*left to right*) are two light ammunition carriers, a medium armored personnel carrier, a Panther, a Mark IV tank, two Panthers, two Mark IV's and still another Panther. In the second row a light armored personnel carrier and a 75-mm. assault gun on the chassis of a PzKw III can be seen.



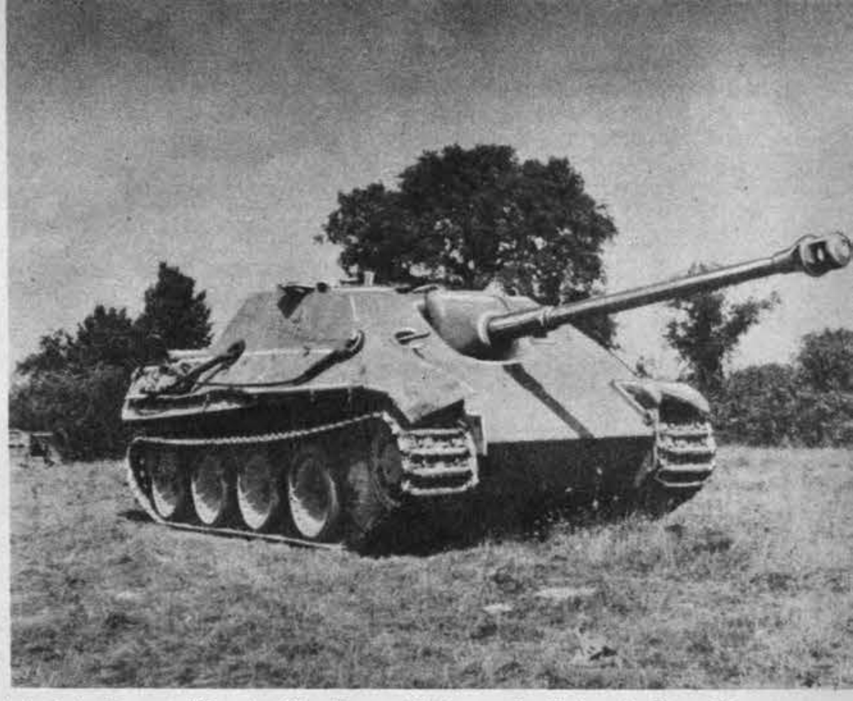
PzKw IV carries long-barreled 75 in its angular, slab-sided turret. Suspension is marked by four return rollers and eight small bogie wheels.



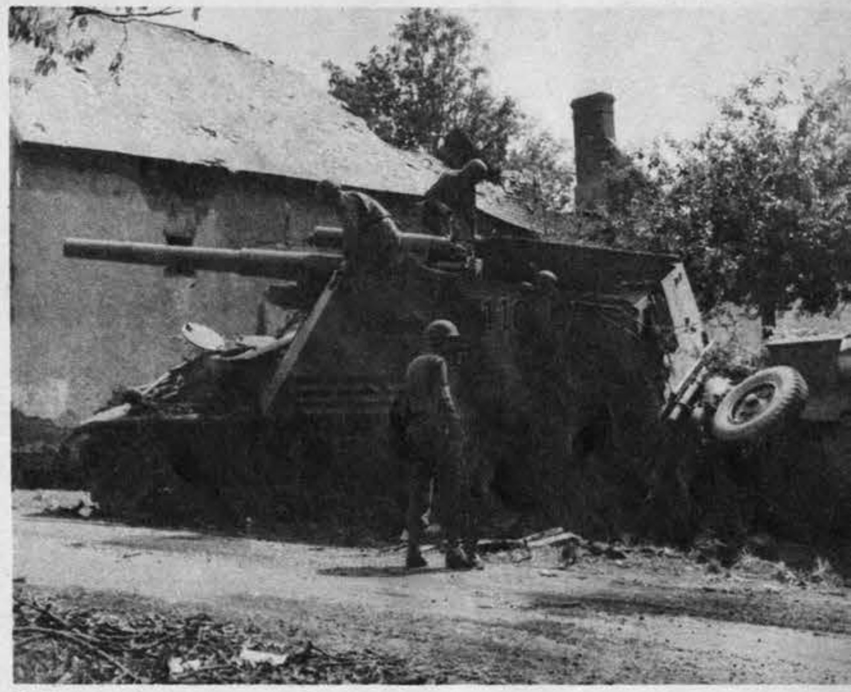
PzKw V Panther can be recognized by its huge front plate and round turret with slanting sides. Large, overlapping wheels support the track.



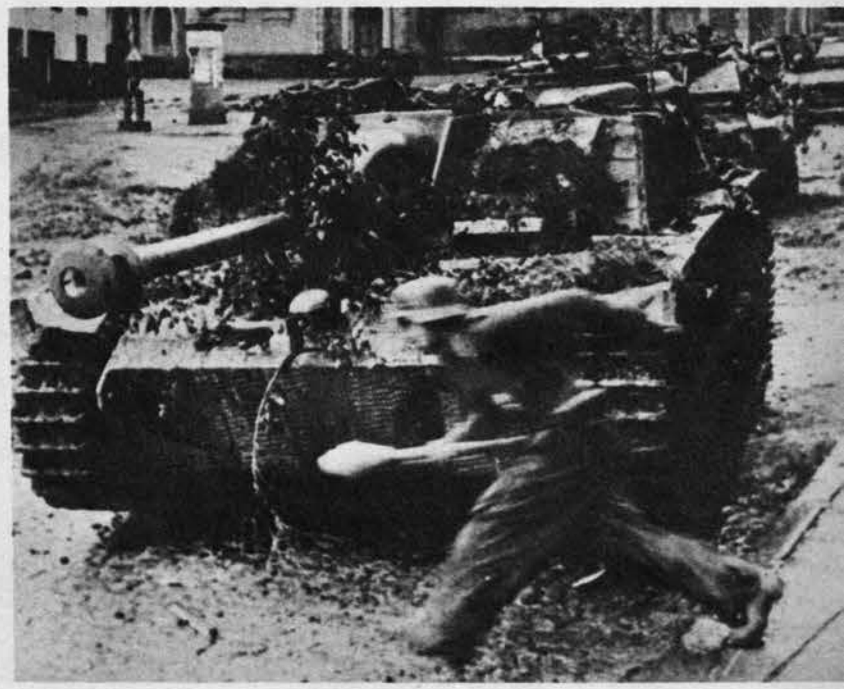
PzKw VI Tiger appears to have turret, hull and chassis in three rectangular layers. The suspension is similar to that of the Panther (*left*).



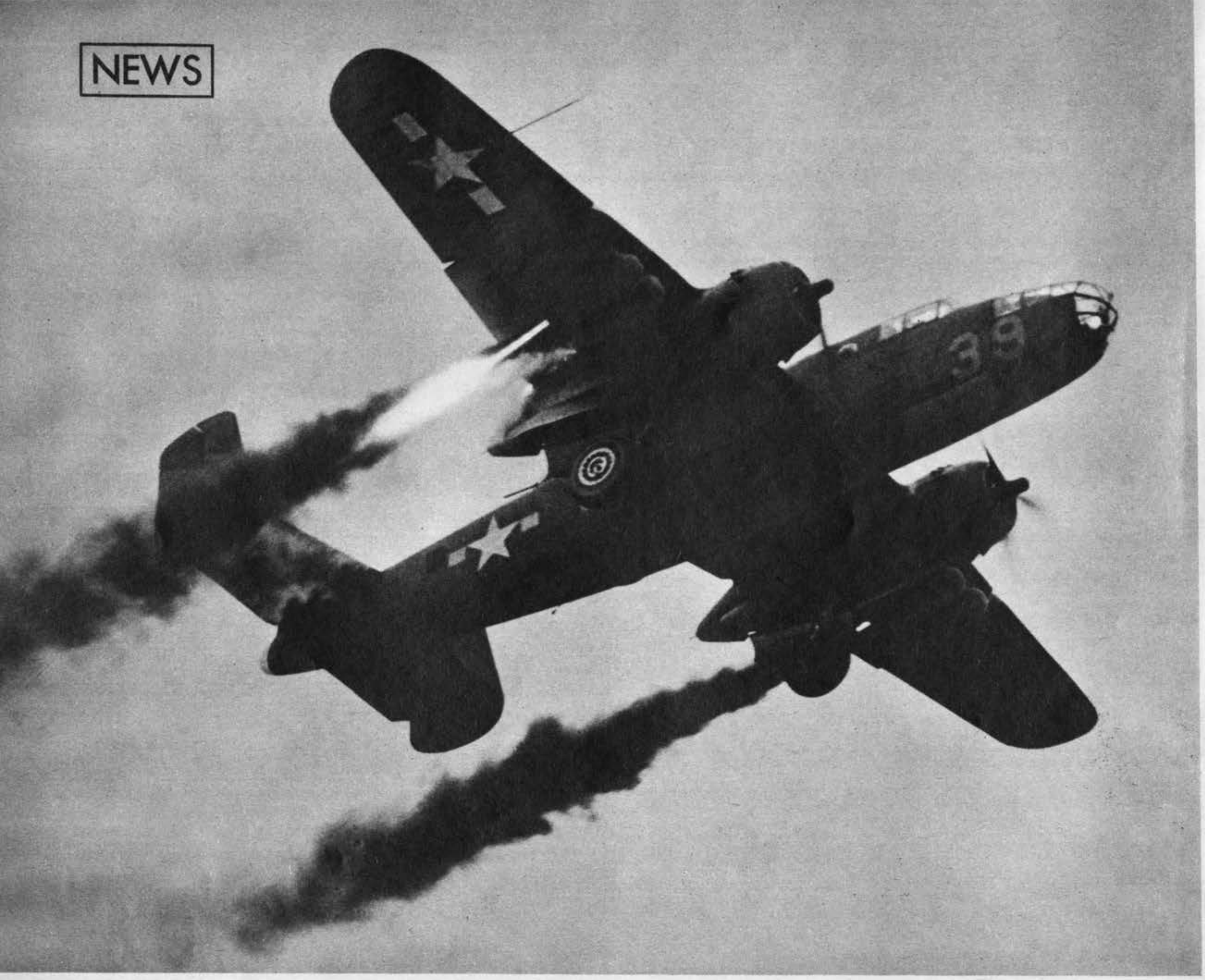
Tank destroyer: Hunting Panther, with its gun built into hull, typifies new Nazi tank destroyers. It has an 88-mm. gun on a PzKw V chassis.



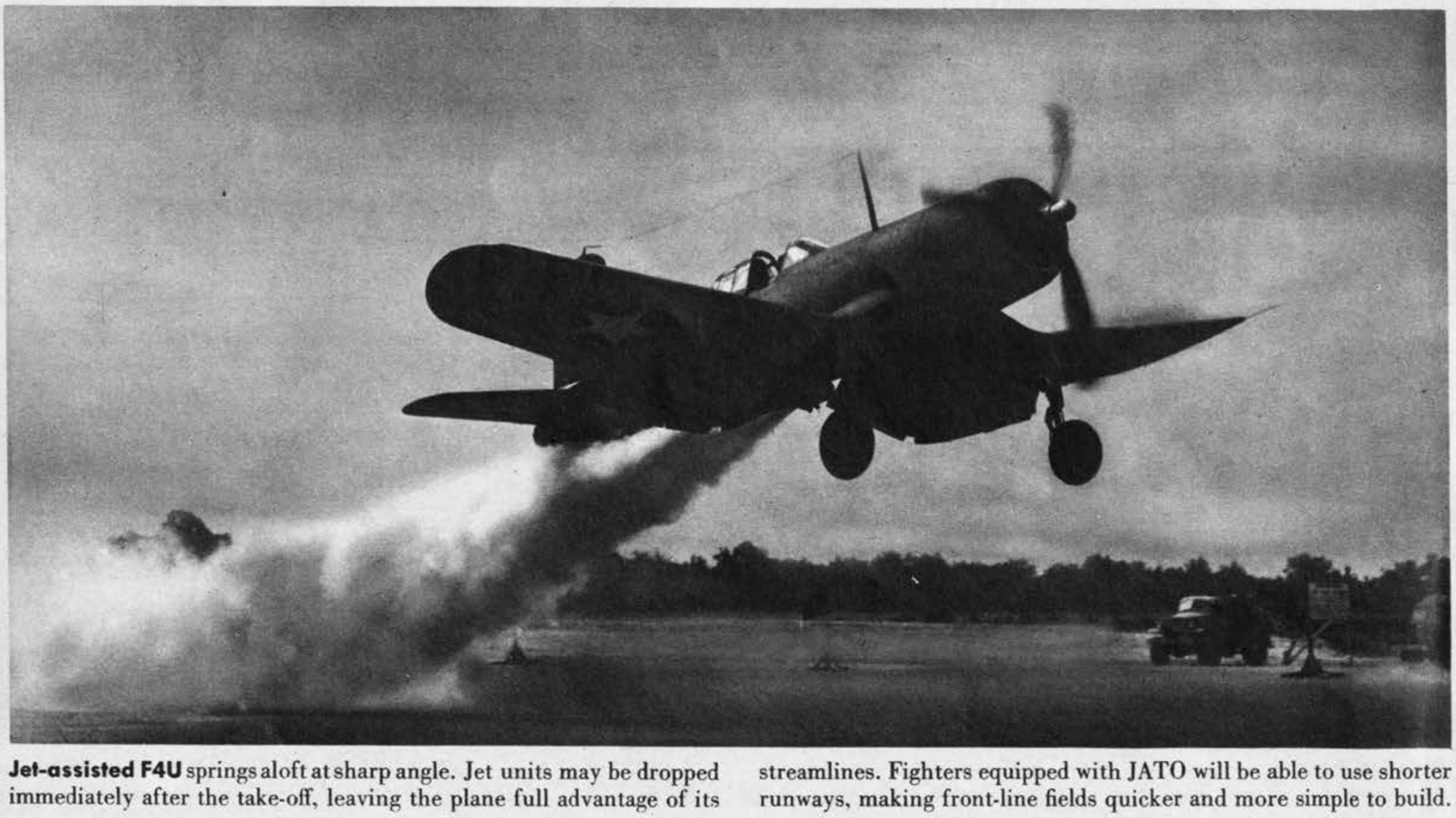
Self-propelled field gun: Nazis' SP field pieces like this Bumblebee (150-mm. howitzer on Mark IV chassis) are usually mounted at rear.



Assault gun: Most German SP guns of this type are mounted on a Mark III chassis (*above*), are built into the hull to give low silhouette.



In Wright Field test, heavily laden B-25 is well on its way with the aid of four jet units slung beneath the wings. At this stage the jet tanks are exhausted or burning out. JATO will enable our rugged medium bombers to get into air with even greater bomb loads than in the past.



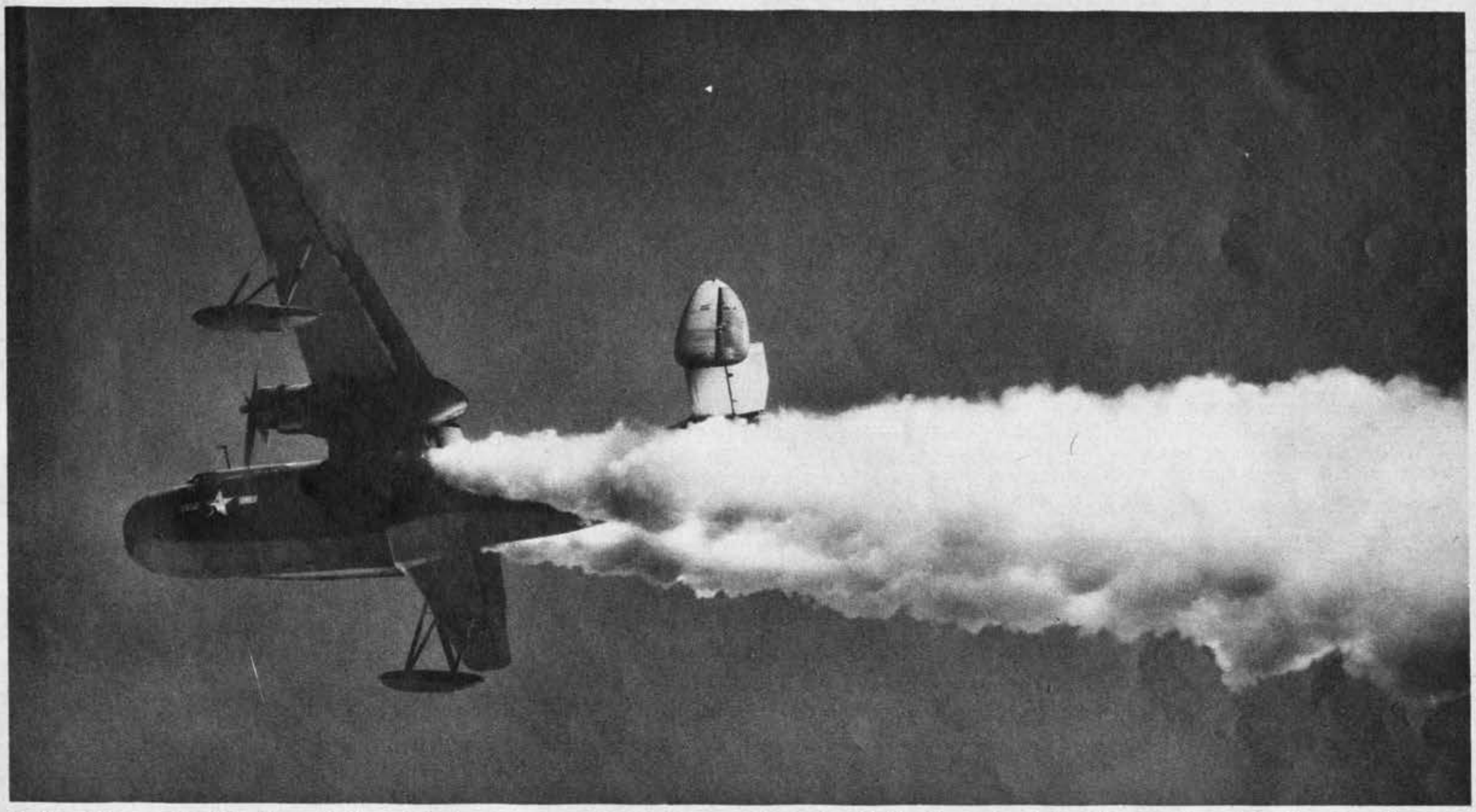
Jet-assisted F4U springs aloft at sharp angle. Jet units may be dropped immediately after the take-off, leaving the plane full advantage of its streamlines. Fighters equipped with JATO will be able to use shorter runways, making front-line fields quicker and more simple to build.

JETS AID TAKE-OFF

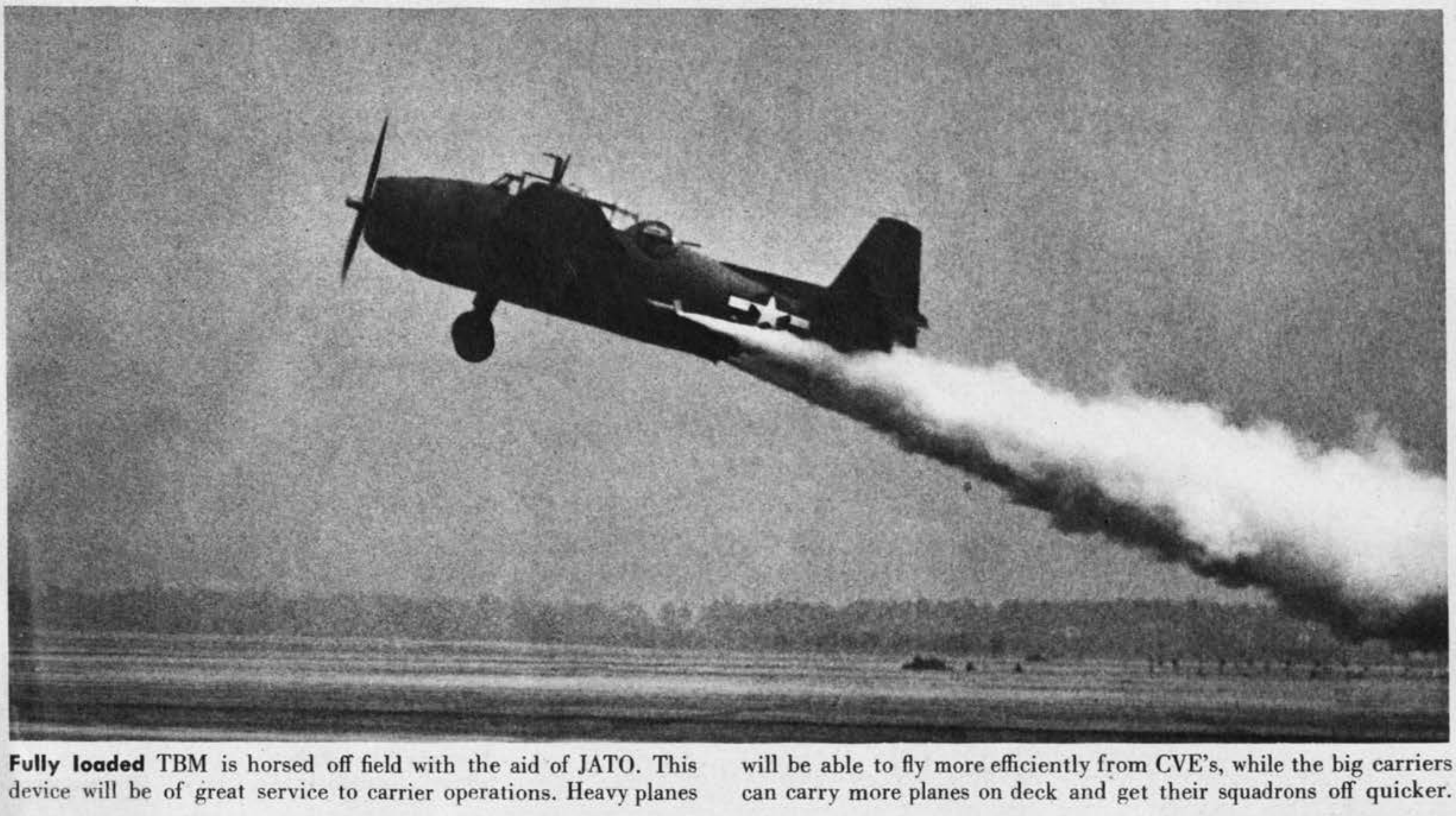
On this month's cover, the beautiful picture of a bulky PBM soaring up off of the water symbolizes the new freedom given to planes by JATO (Jet-Assisted Take-Off).

The new propelling force has its origin in small, bomblike tanks attached to the wings or fuselage. Each tank, or JATO unit, is filled with a solid propellant, including oxygen and fuel. The unit is ignited by an electric current. Gases generated emerge through a nozzle at the rear and deliver a forward thrust of approximately 330 hp.

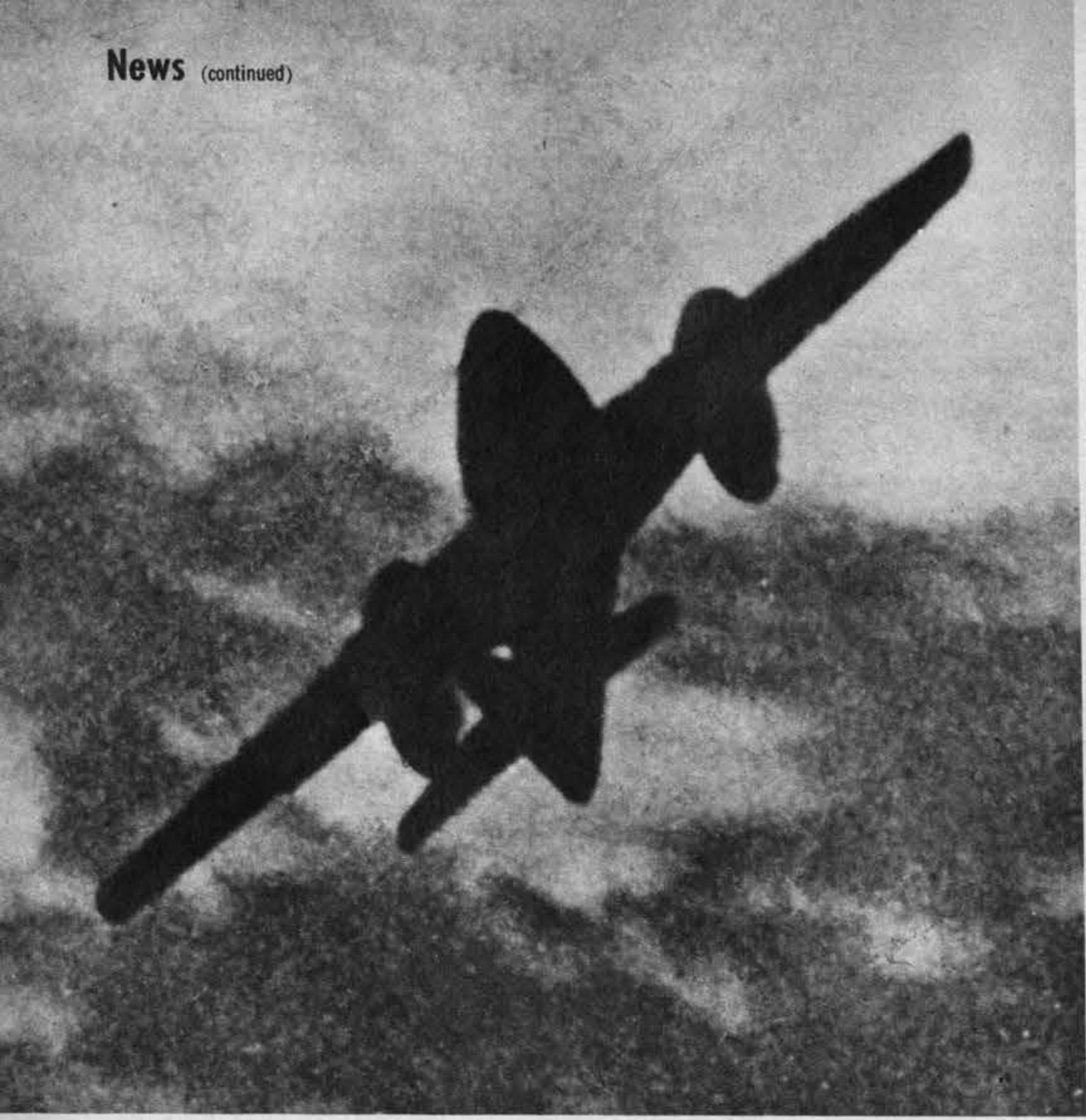
JATO reduces normal take-off runs by 30 to 60 per cent, a tremendous gain in flying efficiency. Planes will now be able to take off from normal fields with greater pay loads, use short take-off areas to greater advantage. A sampling of the different types of aircraft which have already been fitted with the units is shown on these two pages.



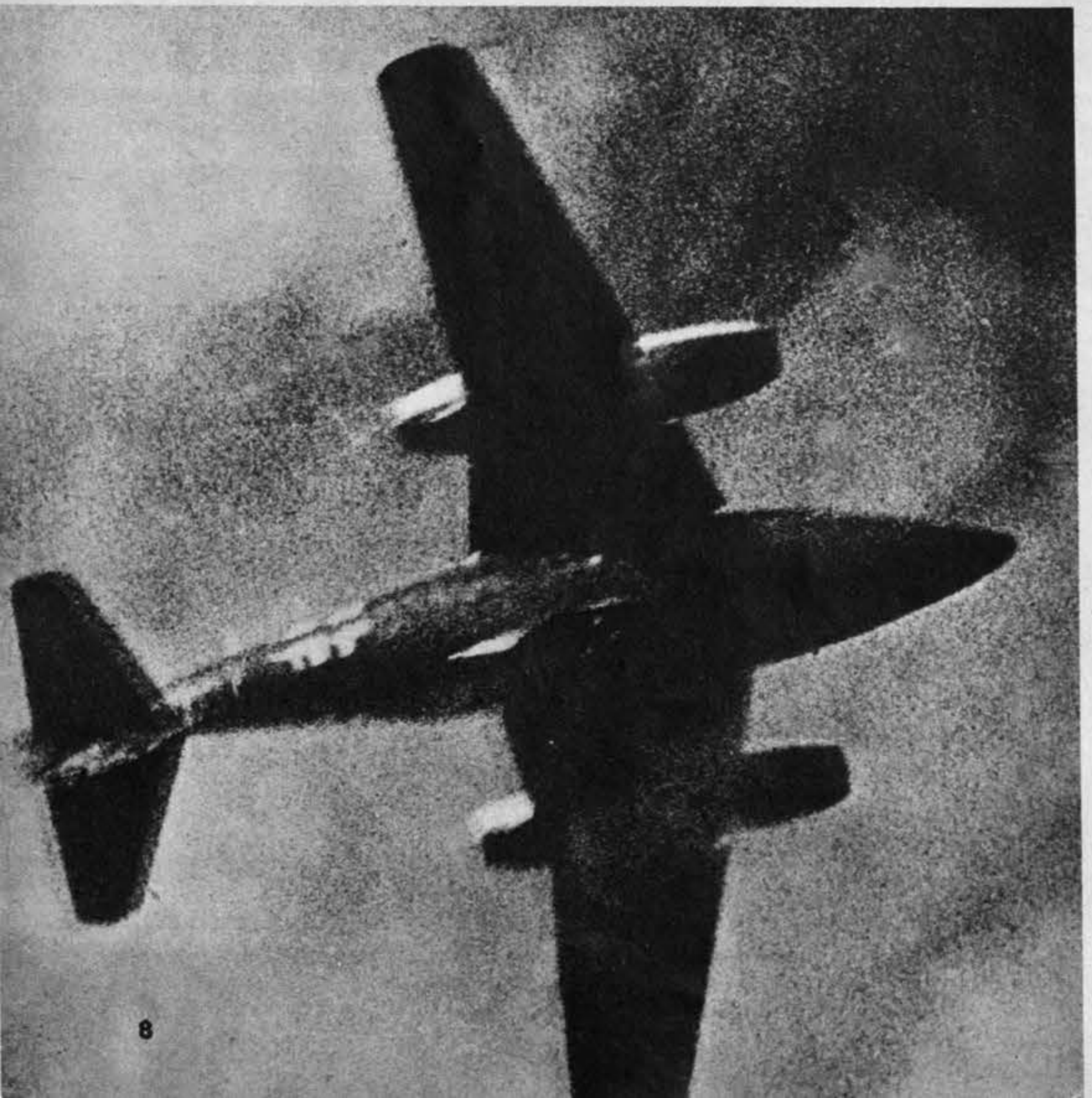
Fully airborne, PBM still trails long JATO streamers as it gathers speed. Jet assistance is a particular boon to the flying boat which has always had difficulty in breaking the suction of placid water. Now our patrol bombers can take off from the small, landlocked Pacific lagoons.



Fully loaded TBM is horsed off field with the aid of JATO. This device will be of great service to carrier operations. Heavy planes will be able to fly more efficiently from CVE's, while the big carriers can carry more planes on deck and get their squadrons off quicker.



Low, swept-back wing and a cigar-shaped fuselage help distinguish the Me-262 (*above and below*). The trailing edge breaks sharply at the nacelles. The wing has even dihedral from root to the blunt tips. Four 30-mm. cannon are thought to be mounted in the pointed nose.



NEW GERMAN WARPLANES

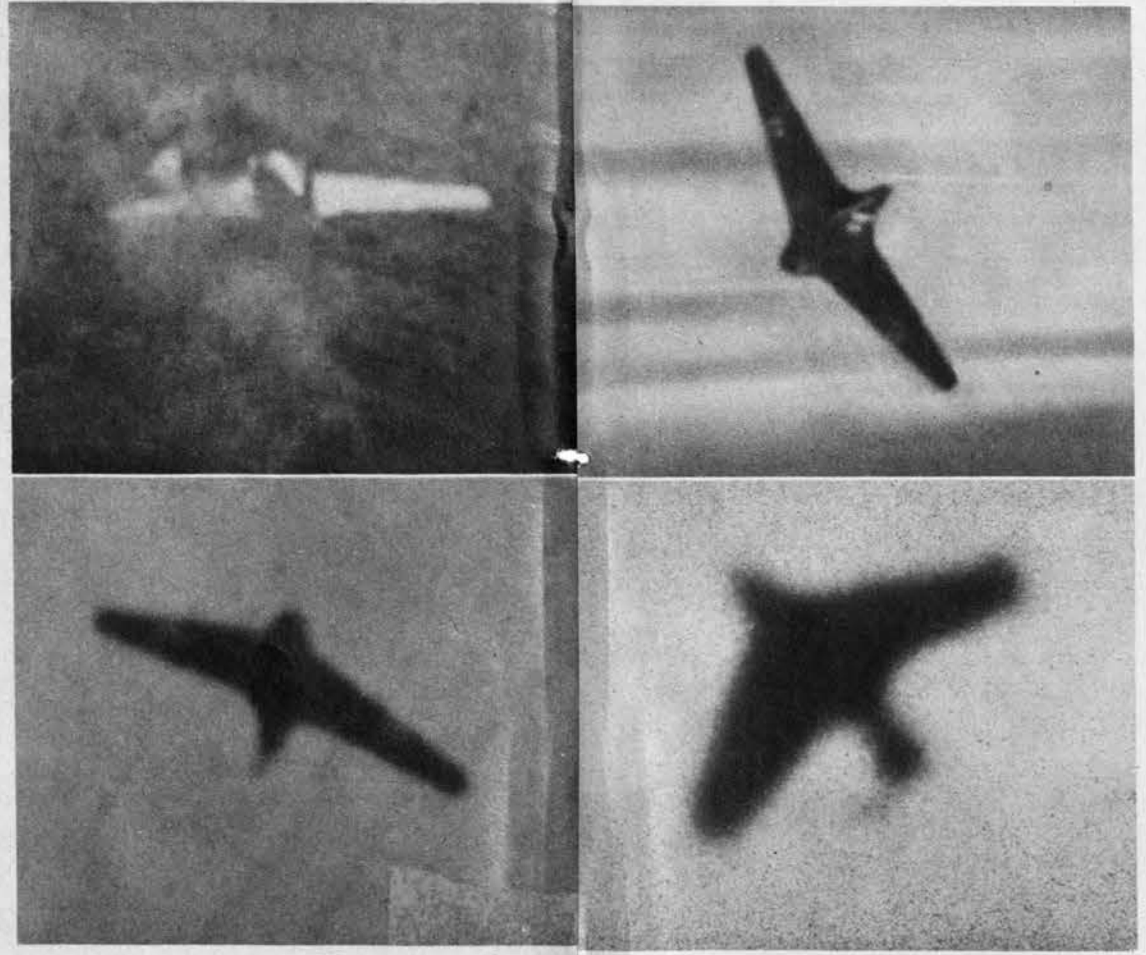
Jet-driven Luftwaffe fighters pace Germany's new air effort

German airpower as well as German armored strength (*see pp. 3–5*) has been making a strong comeback on the Western Front. Throughout December Allied bomber forays over Germany were meeting increased resistance. Nazi planes swarmed over U.S. ground targets in support of the Wehrmacht's great armored assault, while on New Year's Day hundreds of Luftwaffe fighters and fighter-bombers lashed at Allied airfields in Belgium and The Netherlands.

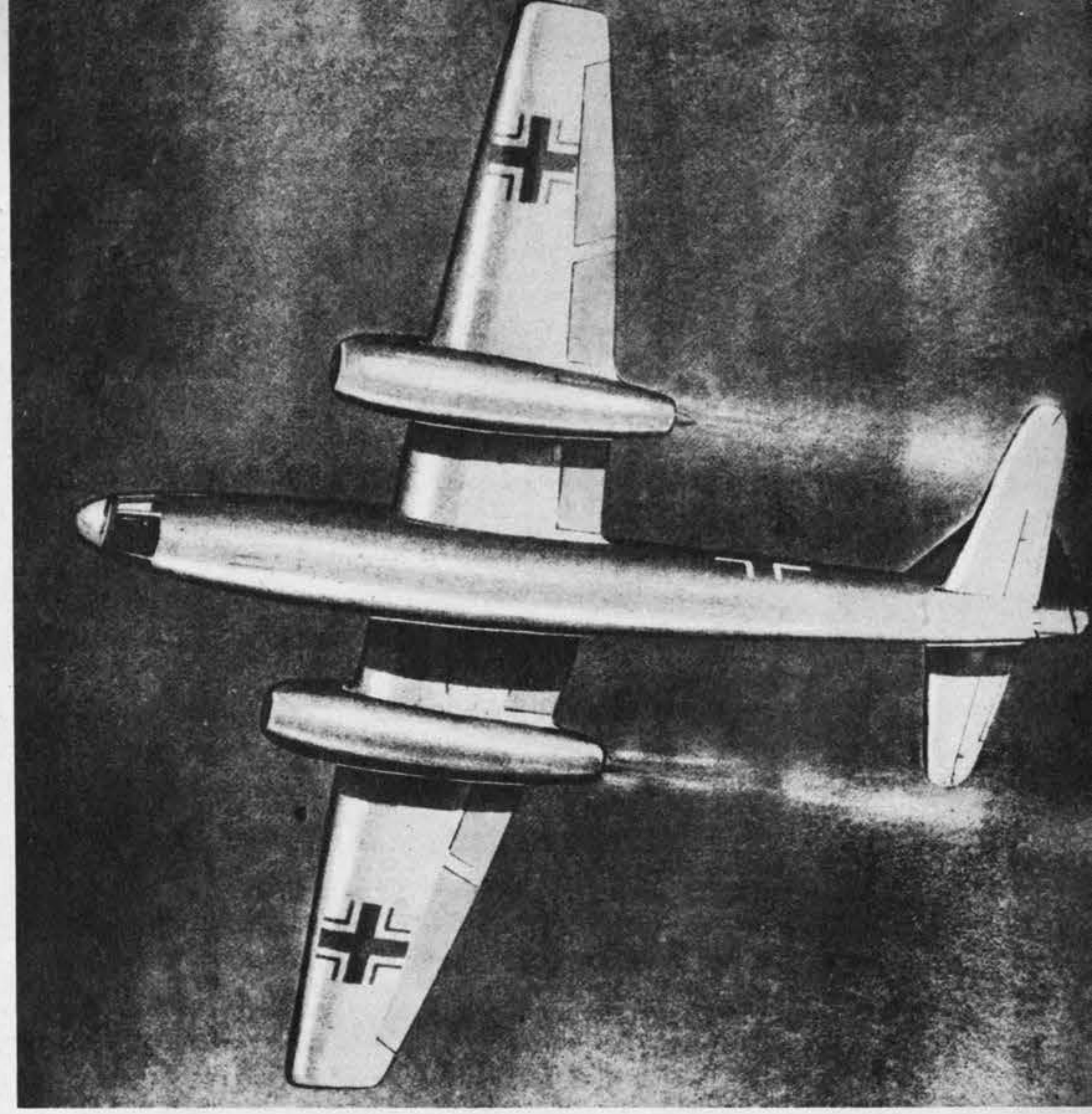
On these pages are shown three of the resurgent Luftwaffe's jet fighters—Me-262, He-280 and Ar-234—and its rocket-propelled Me-163. The two Messerschmitts have been in steady operation for several months; the Arado has been sighted in the air at least once; the Heinkel has appeared at German airfields but its operational status is uncertain. None of the German "squirts" has as yet caused any marked increase in Allied bomber or fighter losses. They have, however, brought down photo-reconnaissance planes in such numbers that they can no longer go unescorted.

All three Nazi turbo-jet types are conventional in appearance, differing from older twin-engine planes in power plant only. In place of gasoline engines driving propellers, the widely spaced nacelles carry turbo-jet units giving them top speeds of 500 m.p.h. and over. The one used most frequently up to now, the Me-262, first saw service as a defensive fighter. Lately, however, it has carried belly bombs and took part in the Jan. 1 assault as a fighter-bomber. It is one of the first German airplanes to have a bubblelike canopy and a tricycle landing gear.

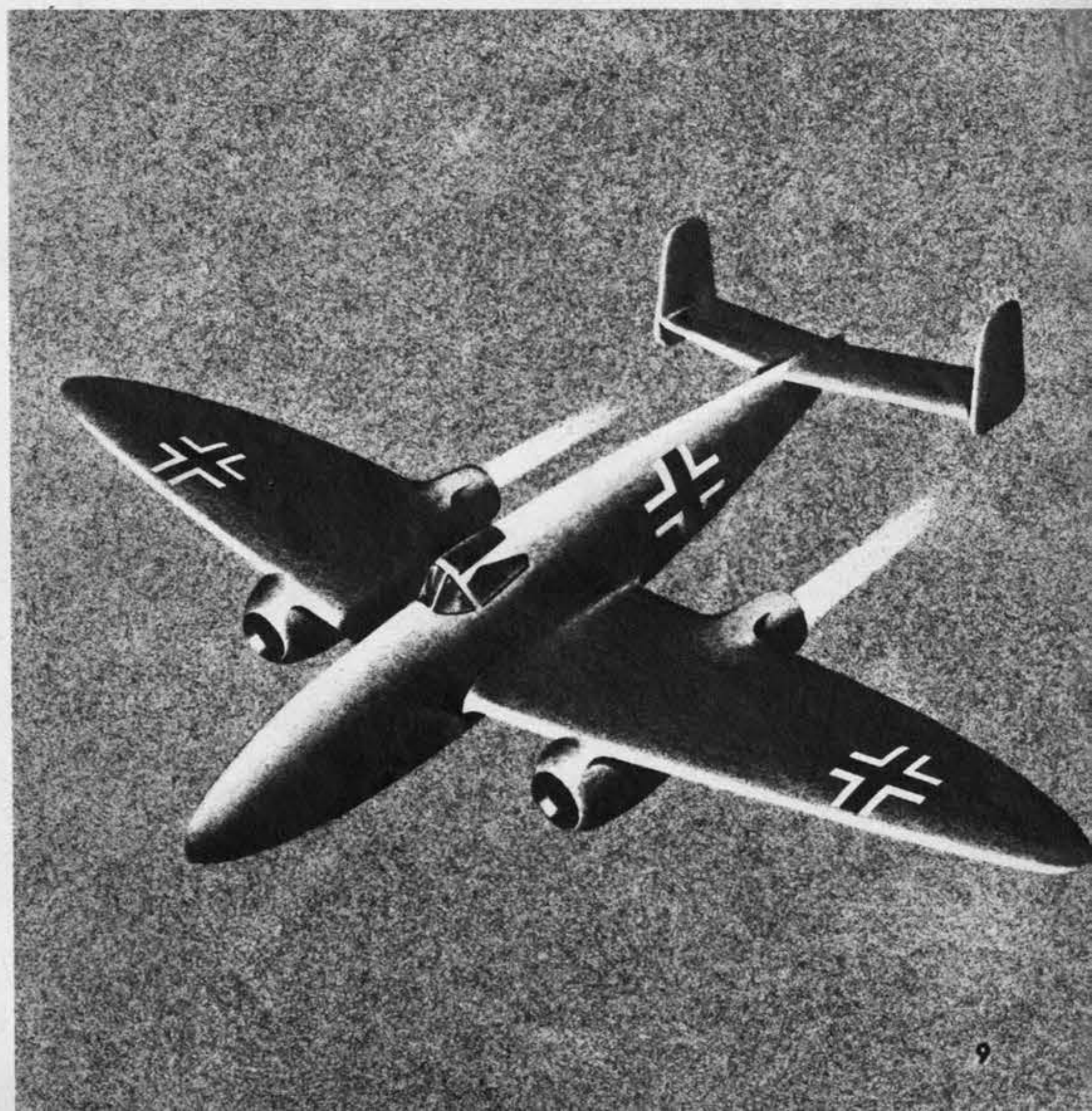
The Me-163 is a purely defensive fighter with a top speed of over 500 m.p.h., terrific rate of climb, but a powered flight of only eight to ten minutes' duration. Since it has no air intake but carries its own oxygen in chemical form, it is classified as rocket-propelled rather than turbo-jet-propelled. This radical craft looks more like a bomb than an airplane. It has no tailplane, the elevators being replaced by differential ailerons on the sharply swept-back wing. The fuselage is extremely short and thick and the cockpit is cleanly faired. Since the undercarriage is dropped after the take-off to save weight, landings must be made on a skid underneath the belly.



Rocket-driven fighter, the Me-163 has mid-wing, an extremely short, fat fuselage and no tailplane at all. Its brief flight duration can be extended to about 45 minutes by periods of gliding.



Preliminary sketch of the Ar-234 (*above*) shows a slim fuselage and a mid-wing with blunt tips and a slightly curved trailing edge. The He-280 (*below*) has a faired cockpit and pointed wingtips. Its twin fins and rudders are set outboard of the tailplane which has slight dihedral.

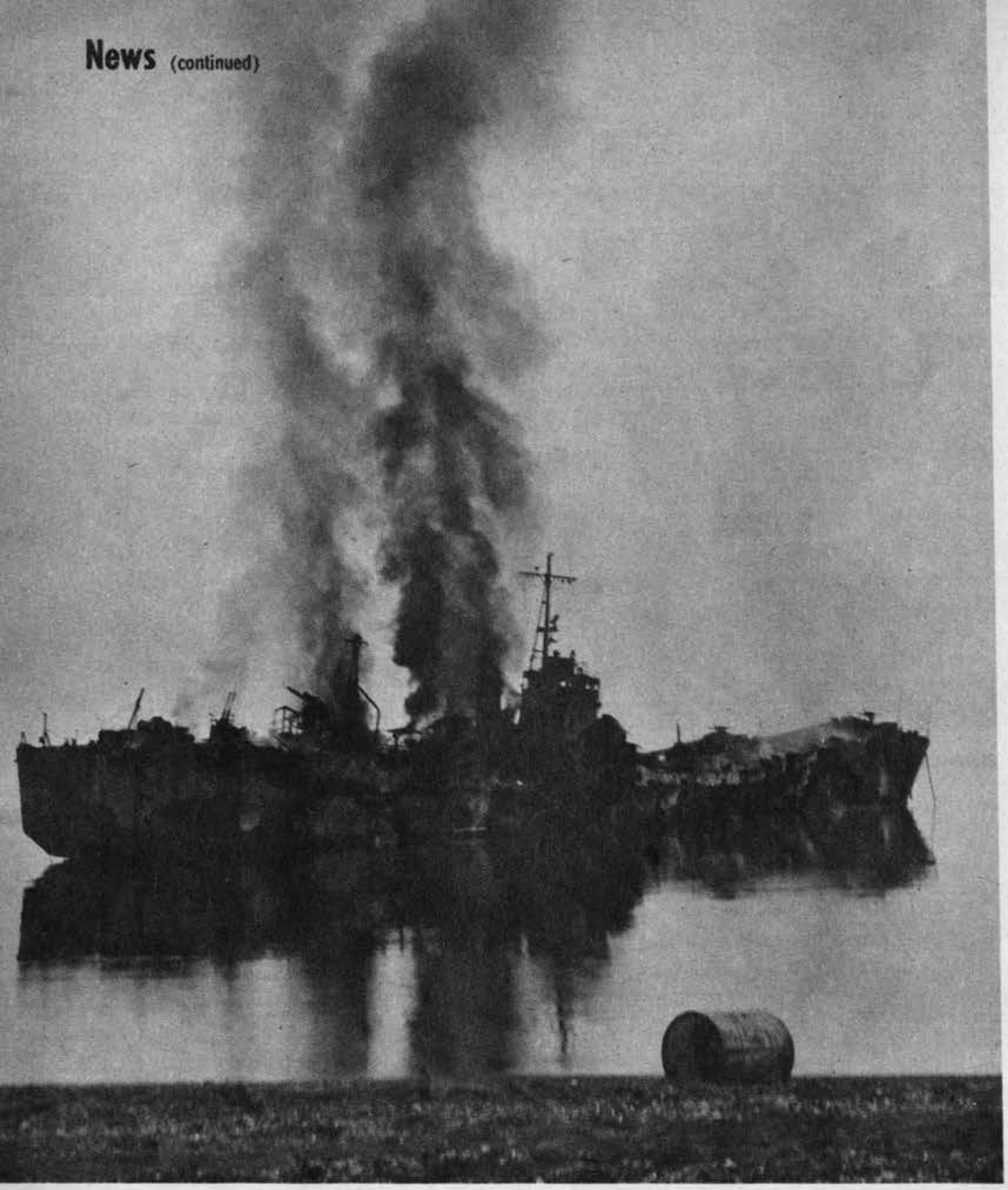


NEW JAP TRANSPORT RESEMBLES AN LST

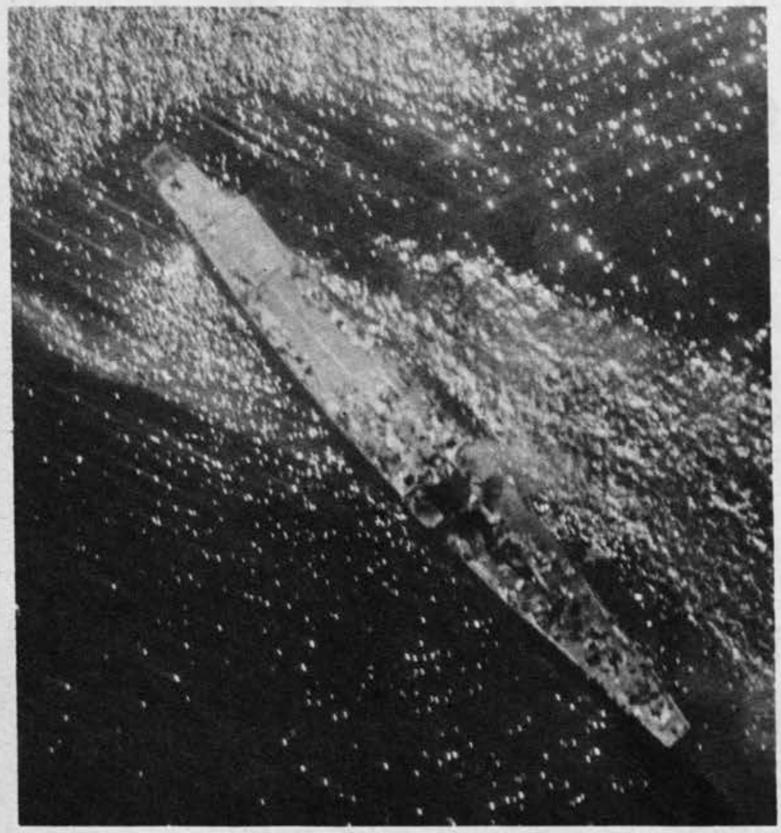
To speed tanks, vehicles and troops to their hard-pressed island outposts, the Japanese have developed this 264-foot cross between a landing barge and a transport. Its ramp bow permits quick unloading of trucks and armor onto the beach without depending on dock facilities. Troops descend by a single ramp on the starboard side, which suggests those found on our earlier LCI's.

An estimated twelve medium or 16 light tanks can be stowed on the lower or tank deck, while six or eight more are carried on the upper deck. Equipment can be easily transferred from one deck to the other by a large ramp forward. These auxiliary transports carry varied armament; one arrangement consists of a three-inch gun mounted at the stern, triple 25-mm. AA on each side of the bridge and possibly more AA forward.

Diesel engines give the new craft a speed of eleven knots which, together with the landing-craft features, enables the Japanese to quickly counter U.S. surprise landings. Since they are cheap and easy to build, they can ease Japan's chronic military supply problem without putting too great a burden on her strained resources. Now that we are carrying the war to the larger Pacific islands where the Japanese will put up a sustained fight, we can expect to encounter these transports more and more frequently.

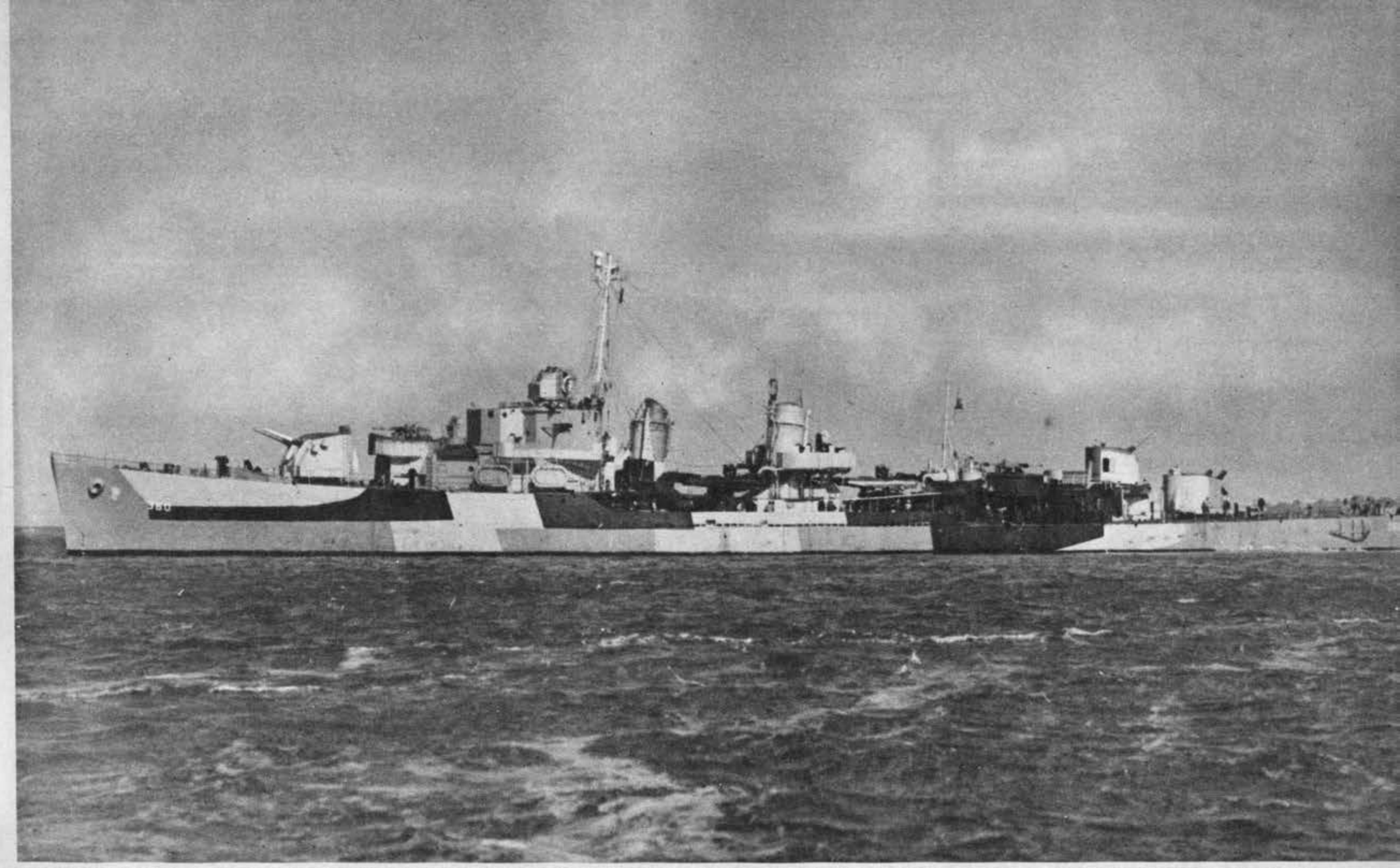


Smoking wreck off Ormoc is dramatic evidence of Japs' frantic efforts to reinforce Leyte garrisons. Note transport's uneven deckline, thin undersized stack close behind bridge.



Angular deck plan of auxiliary transport is typical of most Japanese mass-produced types. A square bridge rises slightly aft of amidships.

Beached and afire, auxiliary transport shows its awkward hull shape and ramp bow. Note the personnel ramp slung along the side of hull.

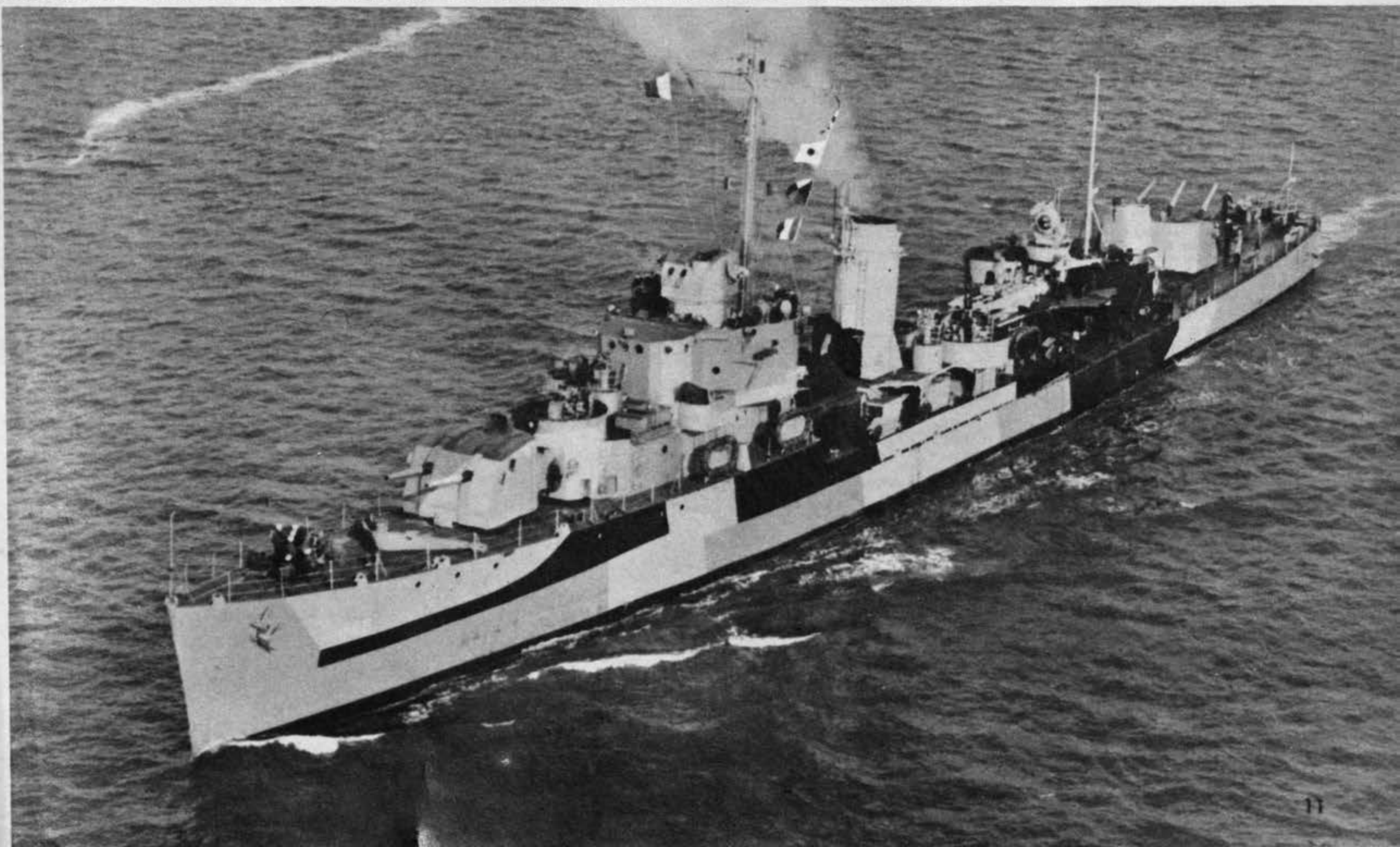


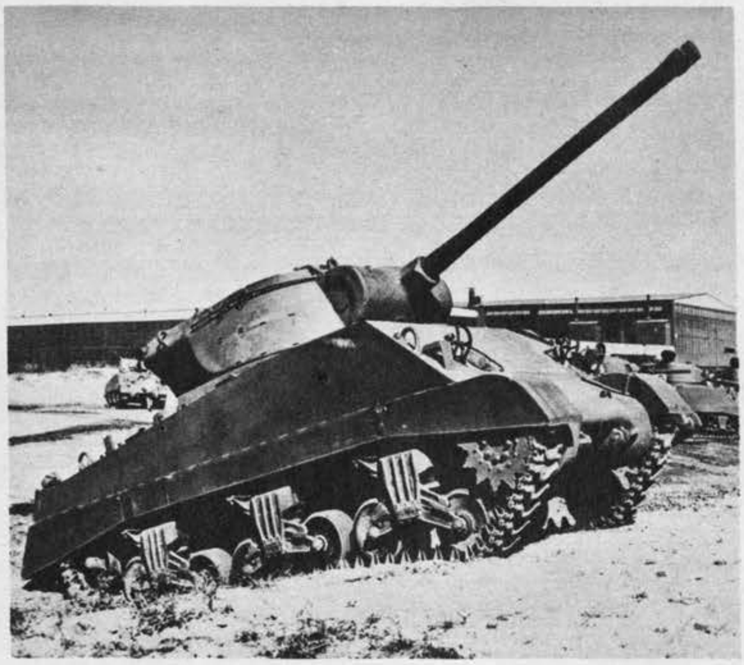
IMPROVED PORTER CLASS DD SHOWS ITS REFIT IN CAMOUFLAGED PROFILE. STACKS HAVE BEEN LOWERED, CAPPED IN MANNER OF FLETCHER CLASS

U. S. MODERNIZES TWO DD CLASSES

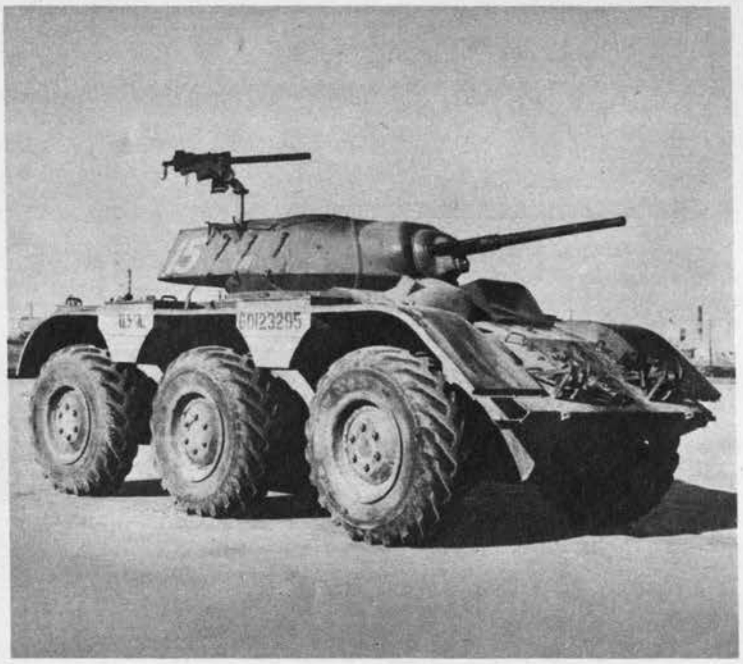
Taking advantage of the lessons of combat, parallel rebuilding jobs have been done on two prewar destroyer classes—Porter and Somers. On both, the bridge has been simplified and smoothly enclosed. An AA platform has been substituted for the superfiring gunhouse forward. This loss of two five-inch guns from the main battery is partially replaced by the addition aft of a single superimposed five-inch gun. The Somers' distinctive single stack and the two stacks of the Porter have been lowered and fitted with caps.

SOMERS CLASS REPEATS CHANGES ON PORTERS—NEW BRIDGE, FORWARD SUPERFIRING GUNHOUSE REPLACED BY AA PLATFORM, GUN ADDED AFT





Sloping hull of modified M-36B1 tank destroyer makes it look more like M-4 than M-10. Note the extreme length of the 90-mm. cannon.

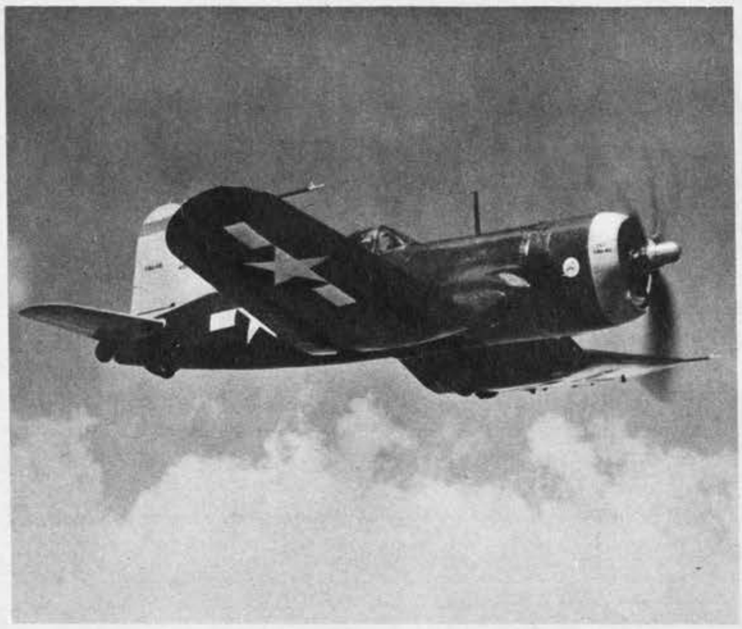


Six huge wheels, evenly spaced, make the M-38 armored car easy to recognize. Its turret is long with considerable overhang at the rear.

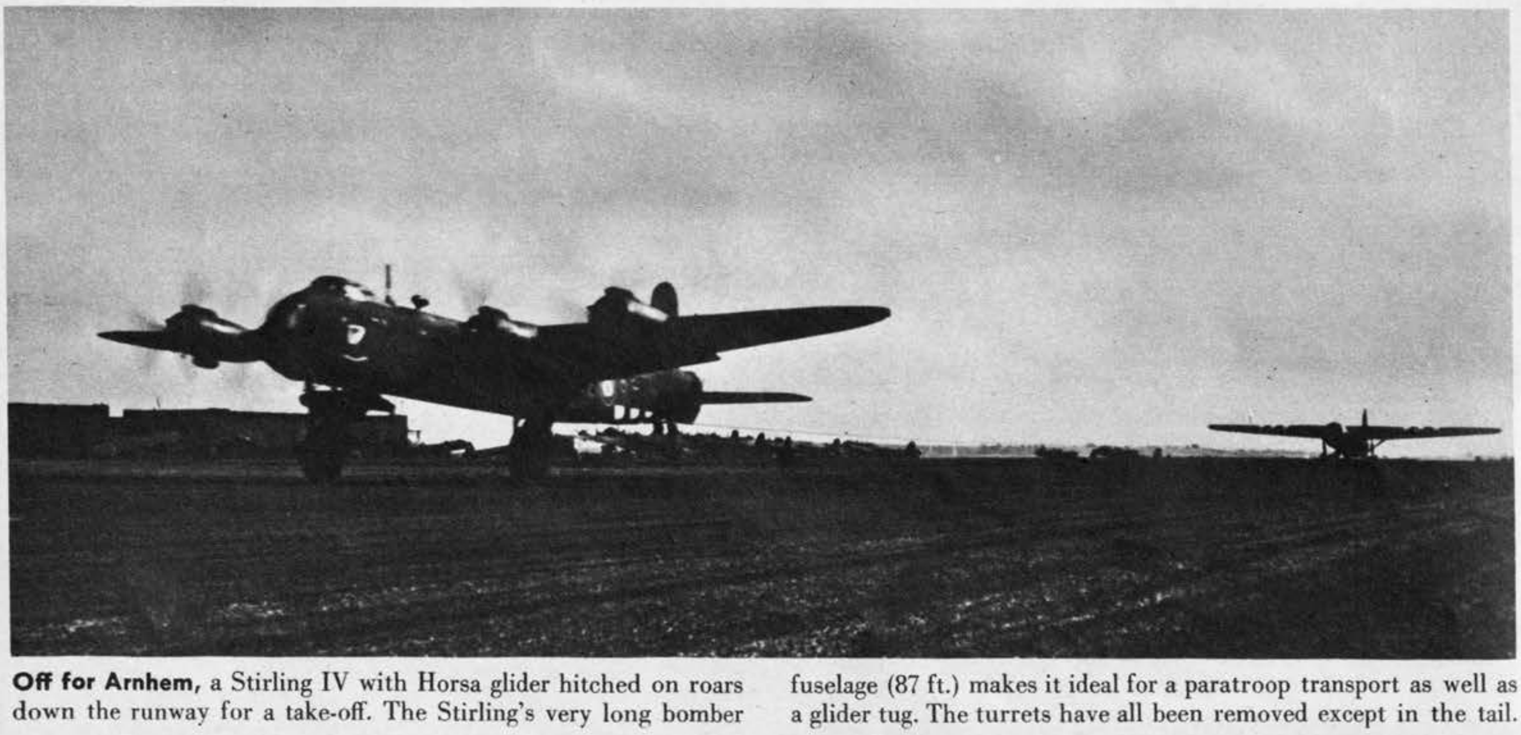
NEW AND REVISED ARMS STRENGTHEN OUR FORCES

Most recent additions to U.S. armored might are the two vehicles pictured at the head of this page. The M-36B1 tank destroyer differs from early M-36's in hull shape; the B1 embodies an M-4A3 tank chassis. The M-38 is a new armored car. Its armament is same as that of the M-8 Greyhound but its six equally spaced wheels are unique among armored cars.

The two planes shown on this page are old familiars in new guises. Because of its new two-stage engine, the F4U-4 Corsair now has an airscoop at the bottom of the cowling, similar to that on the F6F, and two exhaust stacks at the after edge of the cowl. On the other hand, the RAF has cleaned up the Stirling for use as a paratroop transport and glider tug.



New cowling with integral airscoop and two exhaust stacks somewhat alter the nose of the F4U-4. Older wing scoops are retained.



Off for Arnhem, a Stirling IV with Horsa glider hitched on roars down the runway for a take-off. The Stirling's very long bomber fuselage (87 ft.) makes it ideal for a paratroop transport as well as a glider tug. The turrets have all been removed except in the tail.

AIRCRAFT RECOGNITION TRAINING LIST ~~RESTRICTED~~

THESE LISTS ARE DESIGNED MERELY TO GUIDE RECOGNITION TRAINING IN AIRCRAFT AND ARE NOT TO BE CONSTRUED AS SUPERSEDING ANY PREVIOUSLY ISSUED DIRECTIVE. CLASS A COMPRISES AIRCRAFT THAT ARE OPERATIONALLY MOST IMPORTANT. CLASS B COMPRISES AIRCRAFT THAT ARE OPERATIONALLY IMPORTANT IN SOME AREAS AND OR ARE NUMERICALLY LESS IMPORTANT THAN CLASS A, AND ALSO AIRCRAFT WHICH, THOUGH NUMERICALLY IMPORTANT, ARE BEING GRADUALLY REPLACED. EMPHASIS SHOULD BE PLACED ON AIRPLANES IN CLASS A.

U. S. ARMY

CLASS A

DESIGNATION	COMMON NAME	TYPE
P-38	LIGHTNING	2E-SSF, R
P-47	THUNDERBOLT	1E-SSF
P-51	MUSTANG	1E-SSF
P-61	BLACK WIDOW	2E-NF
A-20	HAVOC	2E-LB
A-26	INVADER	2E-MB
B-17	FORTRESS	4E-HB
B-24	LIBERATOR	4E-HB
B-25	MITCHELL	2E-MB
B-26	MARAUDER	2E-MB
B-29	SUPERFORTRESS	4E-HB
C-46	COMMANDO	2E-C
C-47, (C-53)	SKYTRAIN	2E-C
C-54	SKYMASTER	4E-C
C-87 (B-24)	LIBERATOR EXPRESS	4E-C
L-4	GRASSHOPPER	1E-L
L-5	SENTINEL	1E-L

CLASS B

DESIGNATION	COMMON NAME	TYPE
P-40	WARHAWK	1E-SSF
P-63	KINGCOBRA	1E-SSF
C-60	LODESTAR	2E-C
C-82	PACKET	2E-C
CG-4A		G
CG-13		G

U. S. NAVY

CLASS A

DESIGNATION	COMMON NAME	TYPE
FM-2	WILDCAT	1E-SSF
F6F	HELLCAT	1E-SSF
F4U	CORSAIR	1E-SSF
F7F	TIGERCAT	2E-SSF, 2SNF
OS2U	KINGFISHER	1E-SO
SC-1	SEA HAWK	1E-SO
SB2C	HELLDIVER	1E-SB
SBD	DAUNTLESS	1E-SB
TBM (TBF)	AVENGER	1E-TB
PBY	CATALINA	2E-PB
PV-1*	VENTURA	2E-PB
PV-2*	HARPOON	2E-PB
PBM	MARINER	2E-PB
PB4Y-2	PRIVATEER	4E-PB

CLASS B

DESIGNATION	COMMON NAME	TYPE
SOC		1E-SO
PB2Y	CORONADO	4E-PB

*RECOGNITIONALLY SIMILAR

BRITISH RAF

CLASS A

DESIGNATION	COMMON NAME	TYPE
	SPITFIRE*	1E-SSF
	TYPHOON**	1E-SSF
	TEMPEST V**	1E-SSF
	TEMPEST II	1E-SSF
	MOSQUITO	2E-2SF, LB
	BEAUFIGHTER	2E-2SF
	LANCASTER	4E-HB
	HALIFAX	4E-HB
	SUNDERLAND	4E-PB

CLASS B

DESIGNATION	COMMON NAME	TYPE
	HURRICANE	1E-SSF
	WELLINGTON	2E-MB, TB
	STIRLING	4E-MB
	ALBEMARLE	2E-C
	WARWICK	2E-C
	YORK	4E-C
	HORSA	G

BRITISH ROYAL NAVY

CLASS A

DESIGNATION	COMMON NAME	TYPE
	SEAFIRE*	1E-SSF
	BARRACUDA	1E-TB
	FIREFLY	1E-2SF, R

CLASS B

DESIGNATION	COMMON NAME	TYPE
	ALBACORE	1E-TB, R
	SEA OTTER	1E-R
	SWORDFISH	1E-TB, R

*RECOGNITIONALLY SIMILAR

**RECOGNITIONALLY SIMILAR

U. S. S. R. ARMY

CLASS A

YAK-9		1E-SSF
LA-5		1E-SSF
IL-2, 3	STORMOVIK	1E-LB
PE-2, PE-2B (PE-3)		2E-DB, LB
SB-3		2E-MB
DB-3F (IL-4)		2E-MB, TB
TB-7		4E-HB
PS-84 (Russian-built DC-3)		2E-C

CLASS B

LAGG-3		1E-SSF
YAK-1		1E-SSF
MIG-3		1E-SSF
MIG-3 DEVELOPMENT		1E-SSF

U. S. S. R. NAVY

CLASS A

MDR-6		2E-R
GST (Russian-built PBY)		2E-PB

CLASS B

KOR-1		1E-FP, R

AMERICAN AIRCRAFT USED BY SOVIETS

P-39	AIRACOBRA	1E-SSF
P-40	WARHAWK	1E-SSF
P-47	THUNDERBOLT	1E-SSF
P-51	MUSTANG	1E-SSF
P-63	KINGCOBRA	1E-SSF
A-20	HAVOC	2E-LB
B-25	MITCHELL	2E-MB
AT-6	TEXAN	1E-N
AT-19	RELIANT	1E-J

BRITISH AIRCRAFT USED BY SOVIETS

	HURRICANE	1E-SSF
	SPITFIRE	1E-SSF
	MOSQUITO	2E-2SF

GERMAN

CLASS A

DESIGNATION	COMMON NAME	TYPE
ME-109		1E-SSF, B
ME-110		2E-2SF, B
ME-163		1E-SSF
ME-262		2E-SSF, B, R
ME-410		2E-2SF, B
FW-190		1E-SSF, B
JU-88		2E-MB, DB, F, R
JU-188		2E-MB, DB
DO-217		2E-MB, DB
HE-111		2E-MB, TB
FW-200	KURIER	4E-HB

CLASS B

DESIGNATION	COMMON NAME	TYPE
JU-87	STUKA	1E-DB
HE-177		2E-HB, R
JU-52		3E-C
JU-352		3E-C
JU-290		4E-C, B
ME-323		6E-C

JAPANESE

CLASS A

TYPE 4 (?)	FRANK	1E-SSF
RAIDEN	JACK	1E-SSF
T-3	TONY	1E-SSF
T-2	TOJO	1E-SSF
T-1	OSCAR	1E-SSF
T-0	ZEKE 52	1E-SSF
T-2	NICK	2E-2SF, NF
GEKKO	IRVING	2E-2SNF, R
ZUIUN	PAUL	1E-RFP, DB
T-0	JAKE	1E-RFP
T-0	PETE	1E-RFP
T-100	DINAH	2E-R
SAIUN	MYRT	1E-R
SUISEI	JUDY	1E-DB, R
TENZAN*	JILL	1E-TB
TYPE 97*	KATE	1E-TB
RYUSEI	GRACE	1E-TB
T-99	VAL	1E-TB
GINKA	FRANCES	2E-MB, R
T-1	BETTY	2E-MB, R, C
T-100	HELEN	2E-MB
T-?	PEGGY	2E-MB
T-2	EMILY	4E-PB, C

CLASS B

T-0	ZEKE 32	1E-SSF
T-0	RUFE	1E-FP
T-99	SONIA	1E-LB, R
T-98	BABS	1E-R
T-99	LILY	2E-LB, DB
T-96	NELL	2E-MB, C
T-97	SALLY	2E-MB
T-97	MAVIS	4E-PB, C
T-0	TABBY	2E-C
T-0	TESS	2E-C
T-100	TOPSY	2E-C
T-0	THELMA	2E-C
T-1	THERESA	2E-C

*RECOGNITIONALLY SIMILAR

ABBREVIATIONS

B	BOMBER
C	CARGO, TRANSPORT
F	FIGHTER
G	GLIDER
J	UTILITY
L	LIAISON
N	TRAINER
R	RECONNAISSANCE
DB	DIVEBOMBER
FP	FLOATPLANE
HB	HEAVY BOMBER
LB	LIGHT BOMBER
MB	MEDIUM BOMBER
NF	NIGHTFIGHTER
PB	PATROL BOMBER
SB	SCOUT BOMBER
SO	SCOUT OBSERVATION
TB	TORPEDO BOMBER
RFP	RECCO FLOATPLANE
SS	SINGLE-SEAT
2S	TWO-SEAT
1E	SINGLE-ENGINE
2E	TWIN-ENGINE
4E	FOUR-ENGINE

WARSHIPS RECOGNITION TRAINING LIST ~~RESTRICTED~~

THE FOLLOWING TRAINING LIST IS DESIGNED TO SIMPLIFY RECOGNITION OF SURFACE VESSELS. SIMILAR SHIPS OR CLASSES OF THE SAME TYPE HAVE BEEN COMBINED FOR RECOGNITION PURPOSES. THE SHIPS LISTED UNDER CLASS A ARE MOST IMPORTANT. THIS IS THE "MUST LIST." CLASS B SHIPS ARE LESS IMPORTANT, SHOULD BE TAKEN UP AFTER CLASS A IS MASTERED. UNDER EACH ITEM, THE WORD CLASS INDICATES THAT MORE THAN ONE SHIP OF SIMILAR CONSTRUCTION EXISTS. WHERE THE SHIP NAME ALONE IS USED, IT INDICATES A SINGLE VESSEL.

UNITED STATES

BATTLESHIPS (BB)

CLASS A

NEVADA
COLORADO CLASS*
PENNSYLVANIA
NEW MEXICO CLASS
TENNESSEE CLASS—WEST VIRGINIA
NORTH CAROLINA CLASS
SOUTH DAKOTA CLASS
IOWA CLASS

CLASS B

NEW YORK CLASS—ARKANSAS

LARGE CRUISERS (CB)

CLASS A

ALASKA CLASS

AIRCRAFT CARRIERS (CV)

CLASS A

SARATOGA
ENTERPRISE
ESSEX CLASS

CLASS B

RANGER

AIRCRAFT CARRIERS, LIGHT (CVL)

CLASS A

INDEPENDENCE CLASS

AIRCRAFT CARRIERS, ESCORT (CVE)

CLASS A

CVE (BOGUE—SANGAMON—CASABLANCA—COMMENCEMENT BAY CLASSES)

HEAVY CRUISERS (CA)

CLASS A

NORTHAMPTON—PORTLAND—PENSACOLA CLASSES
NEW ORLEANS CLASS
BALTIMORE CLASS

CLASS B

WICHITA

LIGHT CRUISERS (CL)

CLASS A

BROOKLYN CLASS—ST. LOUIS
CLEVELAND CLASS

CLASS B

OMAHA CLASS
ATLANTA—OAKLAND CLASS

DESTROYERS (DD)

CLASS A

OLD "FLUSH DECKERS"
OLD 1 STACK (GRIDLEY—BAGLEY—BENHAM—SIMS—SOMERS** CLASSES)
OLD 2 STACK (BENSON—LIVERMORE—MAHAN—DUNLAP—PORTER**—FARRAGUT CLASSES)
FLETCHER—SUMNER CLASSES
DESTROYER ESCORTS (DE)

SUBMARINES

BALAO CLASS

*SUBJECT TO FURTHER CHANGE IN APPEARANCE
**CHANGED IN APPEARANCE

BRITISH

BATTLESHIPS (BB)

CLASS A

RENOWN
QUEEN ELIZABETH—VALIANT—WARSPITE
NELSON CLASS
KING GEORGE V CLASS

CLASS B

ROYAL SOVEREIGN CLASS—MALAYA

AIRCRAFT CARRIERS (CV)

CLASS A

FURIOUS
ILLUSTRIOUS—IMPLACABLE CLASSES—INDOMITABLE

AIRCRAFT CARRIER, LIGHT (CVL)

CLASS A

UNICORN*

AIRCRAFT CARRIER, ESCORT (CVE)

CLASS A

CVE (BATTLER — NAIRANA CLASSES — ACTIVITY)**

CLASS B

PRETORIA CASTLE

HEAVY CRUISERS (CA)

CLASS A

KENT—DEVONSHIRE CLASSES—NORFOLK

CLASS B

LONDON
HAWKINS CLASS

LIGHT CRUISERS (CL)

CLASS A

LEANDER CLASS
DIDO CLASS
FIJI—SOUTHAMPTON CLASSES***

CLASS B

DRAGON — CARLISLE CLASSES — ADVENTURE (CM)
EMERALD
ARETHUSA CLASS—HOBART
ADELAIDE
BELFAST

DESTROYERS (DD)

CLASS A

TOWN CLASS (EX-U.S.)
2 STACK ("A" TO "I"—WALLACE—DOUGLAS—SAGUENAY—CODRINGTON—TRIBAL CLASSES)
NEW 1 STACK ("J" TO "Z"—HUNT**** CLASSES)

CLASS B

OLD 2 STACK ("V" TO "W"—WAIRS CLASSES)

SUBMARINES

TRITON CLASS
1940 "S" CLASS
UNITY CLASS

*UNICORN RATED BY BRITISH AS CARRIER-REPAIR SHIP.
**SMITER CLASS (CVE) IS INCLUDED WITH BATTLER CLASS (CVE). ARCHER CLASS REMOVED FROM LIST BECAUSE OF OPERATIONAL STATUS.
***INCLUDES UGANDA AND SWIFTSURE CLASSES.
****HUNT CLASS RATED AS DE IN ONI 201-D.

JAPANESE

BATTLESHIPS (BB)

CLASS A

KONGO CLASS
ISE CLASS*
NAGATO CLASS
YAMATO CLASS

AIRCRAFT CARRIERS (CV)

CLASS A

HAYATAKA CLASS
TAIHO

AIRCRAFT CARRIERS, LIGHT (CVL)

CLASS A

ZUIHO CLASS

CLASS B

HOSHO

AIRCRAFT CARRIER, ESCORT (CVE)

CLASS A

OTAKA CLASS—KAIYO

HEAVY CRUISERS (CA)

CLASS A

NACHI—AOBA CLASSES
ATAGO CLASS
TONE CLASS
MOGAMI CLASS

LIGHT CRUISERS (CL)

CLASS A

KUMA—NATORI CLASSES
AGANO CLASS
OYODO**

DESTROYERS (DD)

CLASS A

OLD 2 STACK (MUTSUKI—KAMIKAZE—MINEKAZE—WAKATAKE CLASSES)***
NEW 2 STACK (FUBUKI—SHIGURE—HATSUHARU—ASASHIO—TAKANAMI—MATSU CLASSES) ****
TERUTSUKI CLASS

CLASS B

CHIDORI—OTORI CLASS (TB)

SUBMARINES

1-15
1-168
RO-100

*REFITTED.
**OYODO, A SINGLE UNIT, ORIGINALLY BELIEVED TO BE OF THE AGANO CLASS.
***OLD 2 STACKERS ARE LISTED AS ESCORT DESTROYERS IN NEW ONI 41-42 INDEX.
****TAKANAMI CLASS DD IS AN ENLARGED ASASHIO. MATSU CLASS IS NEW DD WITH SIMPLIFIED CONSTRUCTION.

FRENCH

BATTLESHIPS (BB)

CLASS A

RICHELIEU

LIGHT CRUISERS (CL)

CLASS A

LA GALISSONNIERE CLASS

CLASS B

EMILE BERTIN

DESTROYERS (DD)

CLASS A

LE FANTASQUE CLASS

OTHER TYPES

MERCHANT SHIP TYPES

PASSENGER
PASSENGER-CARGO
CARGO—(COMPOSITE SUPERSTRUCTURE)
(SPLIT SUPERSTRUCTURE)
ENGINES AFT—TANKER, CARGO, WHALER

NOTE (1): MERCHANT VESSELS OF ALL NATIONS INCLUDED UNDER THE ABOVE TYPES.
(2): CONVERSIONS OF MERCHANT SHIPS USED AS NAVAL AUXILIARIES ARE CLASSIFIED AS MERCHANT SHIPS.

LANDING CRAFT

U. S. AND BRITISH

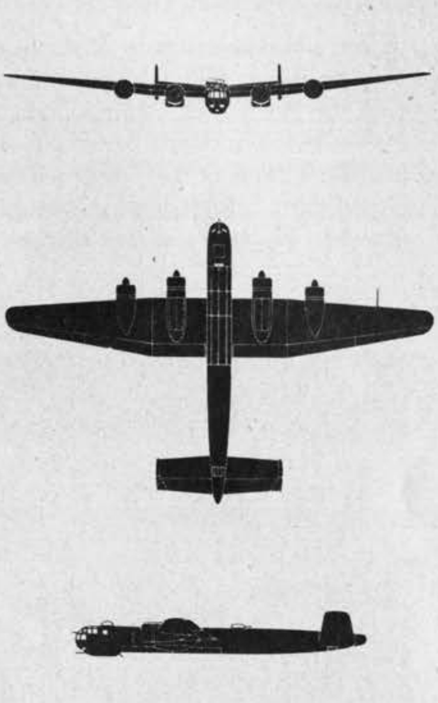
LANDING SHIP, TANK (LST)
LANDING SHIP, DOCK (LSD)
LANDING SHIP, MEDIUM (LSM)
LANDING CRAFT, INFANTRY (LCI)
LANDING CRAFT, TANK (LCT)
LANDING CRAFT, MECHANIZED (LCM)
LANDING CRAFT, SUPPORT (LCS)
LANDING CRAFT, CONTROL (LCC)
LANDING CRAFT, VEHICLE AND PERSONNEL (LCVP)
LANDING VEHICLE, TRACKED AND LANDING VEHICLE, TRACKED (ARMORED) (LVT AND LVT(A))
DUCK—2½-TON AMPHIBIAN TRUCK

NOTE: BRITISH HAVE NUMEROUS ADDITIONAL MINOR VARIATIONS OF BASIC TYPES.

JAPANESE

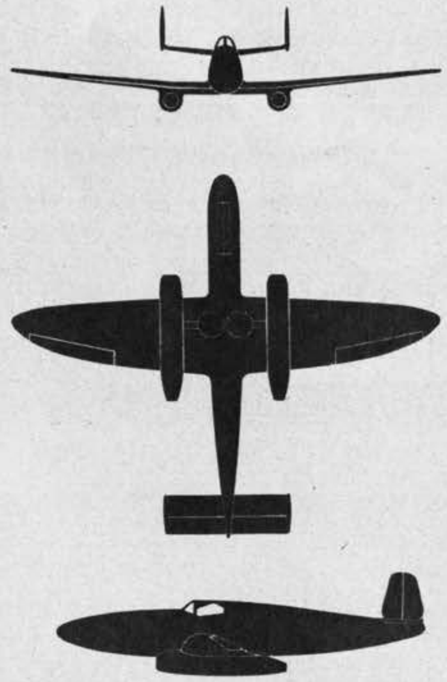
TYPE A
TYPE B
TYPE C
TYPE D
TYPE E
TYPE F
TYPE G
LANDING CRAFT CARRIER

NEW AND REVISED AIRPLANE SILHOUETTES



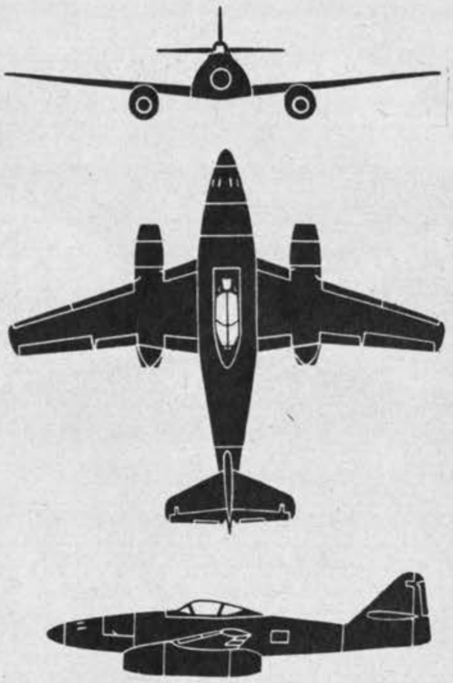
HE-177B

SPAN 103 FT. 2 IN. LENGTH 72 FT.
MODIFIED LUFTWAFFE BOMBER (PROVISIONAL)



HE-280

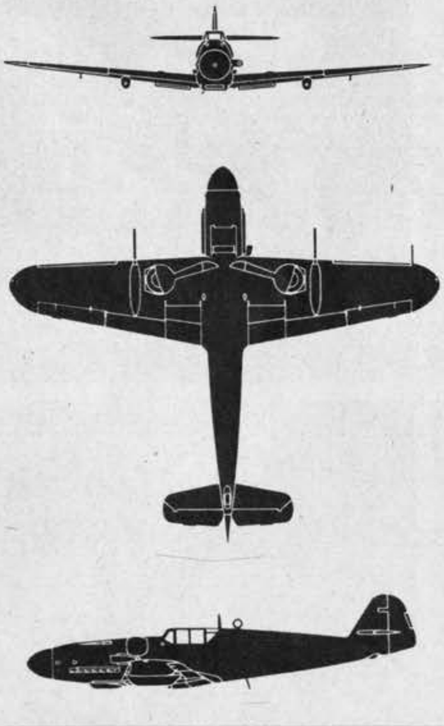
SPAN 39 FT. 4 IN. LENGTH 34 FT. 2 IN. (EST.)
ONE OF NAZIS' JET PLANES (PROVISIONAL)



ME-262

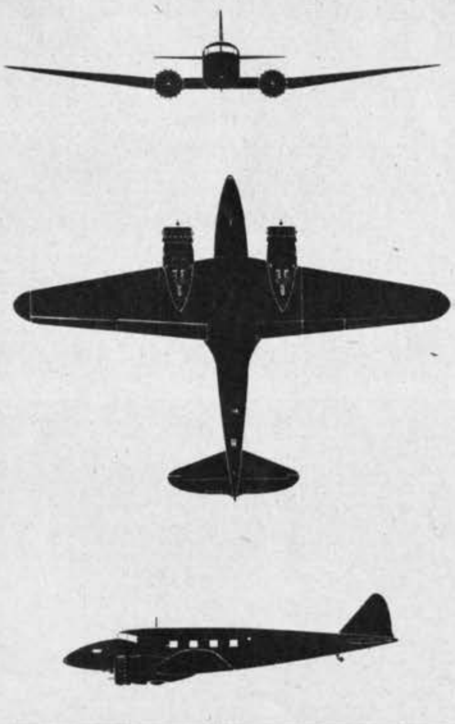
SPAN 41 FT. 7 IN. LENGTH 34 FT. 9 IN.
GERMAN JET HAS BROKEN TRAILING EDGE

Twin-tail assembly and four nacelles mark one new version of the He-177. It is also seen with a single tail or a longer span. Another Heinkel, the He-280 twin-jet and twin-tail fighter, has a questionable operational status (*see p. 9*). Newest silhouette of the Me-262 Blitzbomber shows a number of changes. The wing's trailing edge is broken, the fuselage is thicker, whole structure more angular.



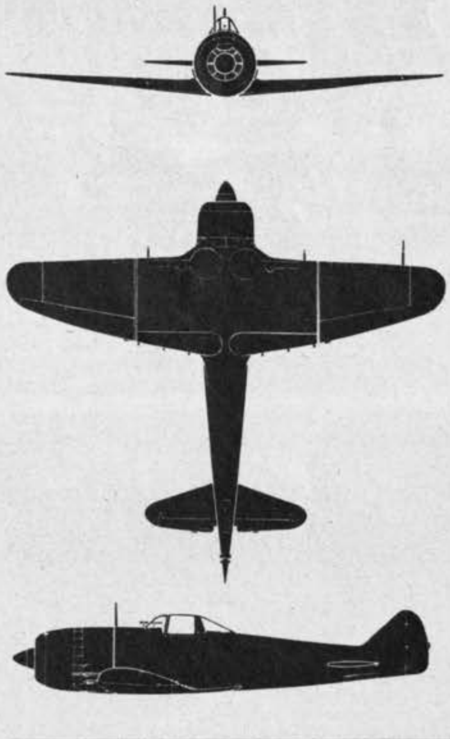
ME-109G6

SPAN 32 FT. 8 IN. LENGTH 29 FT. 11 IN.
NAZI VETERAN HAS A NEW FIN AND RUDDER



THORA 1

SPAN 65 FT. 4 IN. LENGTH 50 FT.
JAPANESE ARMY TRANSPORT (PROVISIONAL)

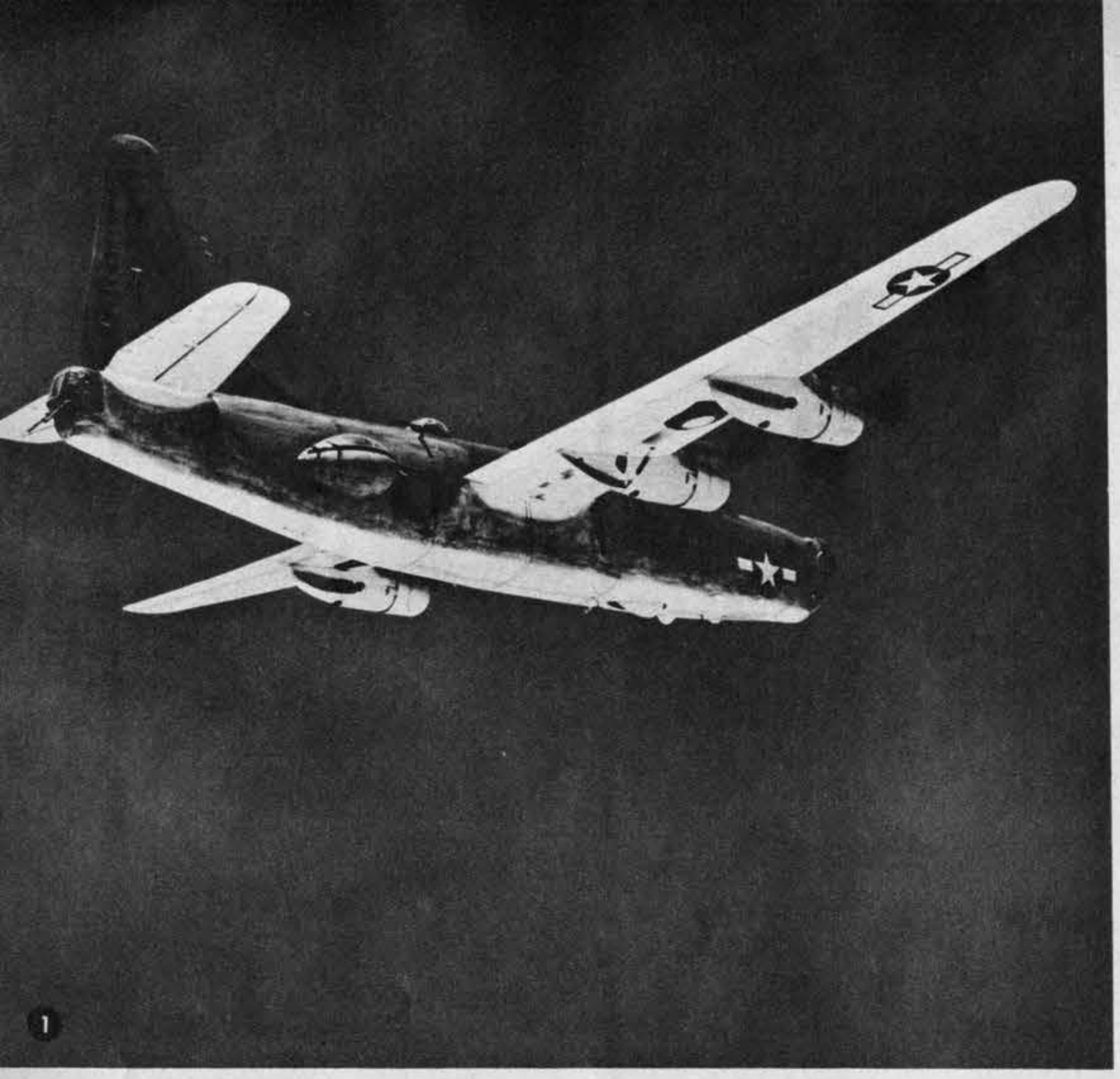


TOJO 2

SPAN 31 FT. LENGTH 29 FT. 2 IN.
CORRECTED CANOPY ON JAPANESE FIGHTER

Taller fin and rudder, rounded at the top, can now be seen on the Me-109, Germany's oldest operational fighter plane and still her best at high altitudes. The Japanese transport Thora is a conventional twin-engine plane somewhat smaller than the older Topsy which it resembles. Tojo 2's cockpit cover, which slants down from the pilot's armor, is not new. It has been adapted from that used on Tojo 1.

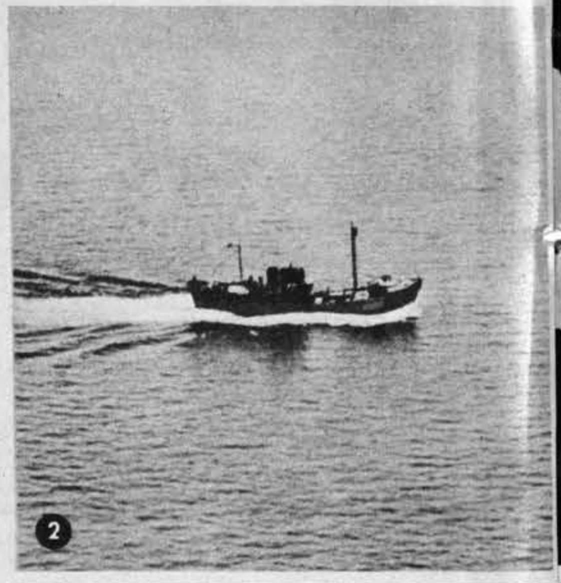
QUIZ NO. 2: U. S. NAVY BOMBER ON PACIFIC PATROL


1

Patrol bombers have flown back and forth over millions of miles of ocean in both the Pacific and Atlantic, maintaining a systematic, unremitting reconnaissance of Allied, enemy and disputed waters. Essentially a defensive mission to spot embryo or full-fledged enemy threats, long-range patrol has also found the objectives for both carefully planned and spontaneous attacks by our forces.

After a patrol plane leaves its base it must report everything encountered, for no matter how unimportant or obvious the object appears, it may have significance in relation to other reports. On the first stages of patrol, observers probably will see coastal craft and friendly planes. Farther out convoys and task forces may be encountered. Then, as the patrol enters the enemy's sphere of military influence, hostile planes must be fought off, while enemy shipping offers targets of opportunity. All along the route, spotters will see the confusing flotsam of the ocean.

An example of just such a varied array of ships, planes, objects and incidents is represented in the pictures below. If you were flying this patrol, what would you report?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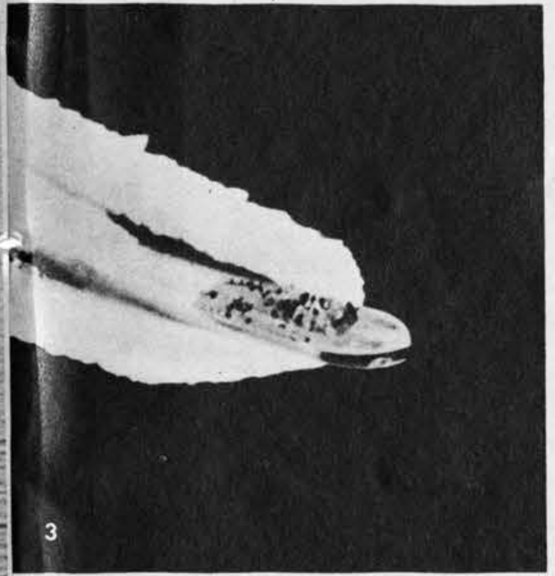
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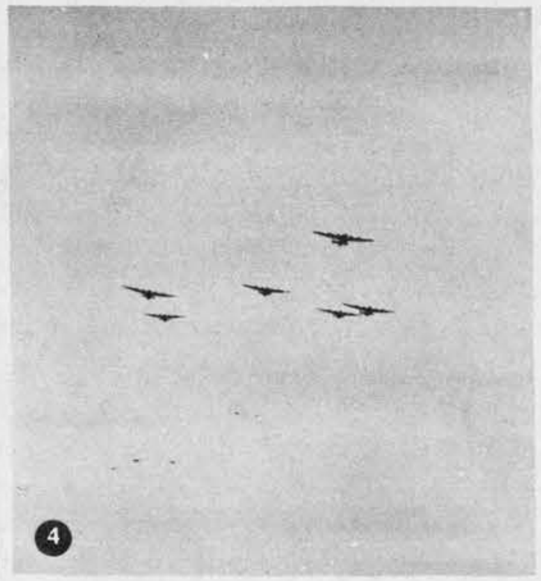
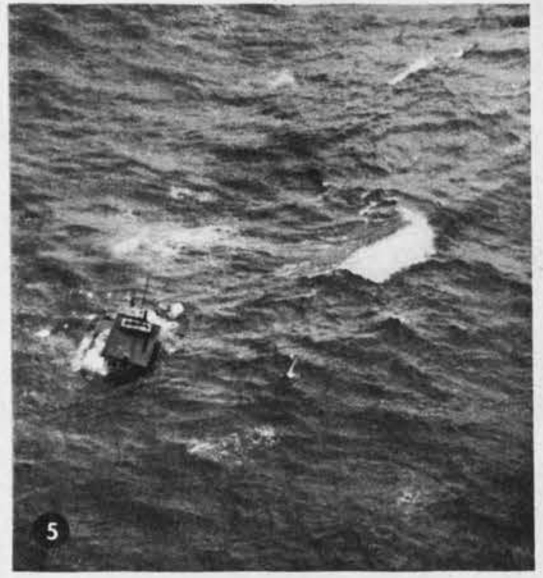

4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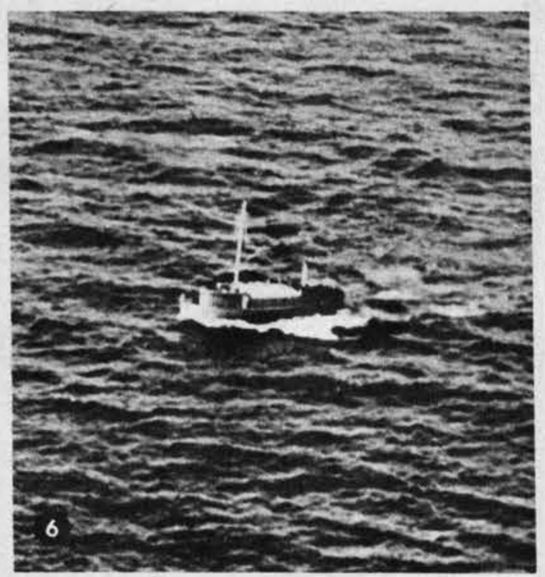
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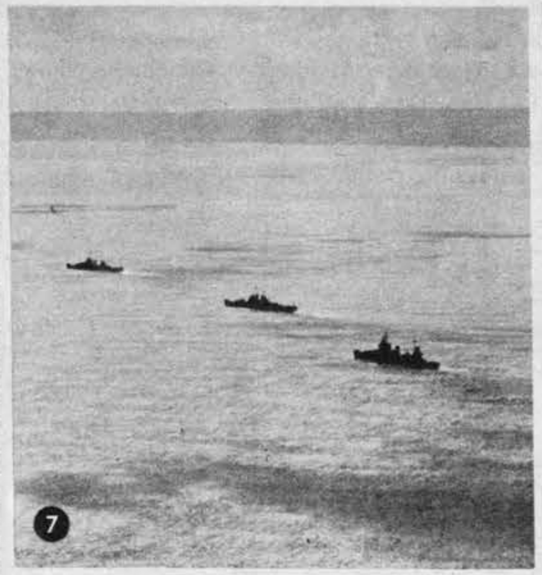
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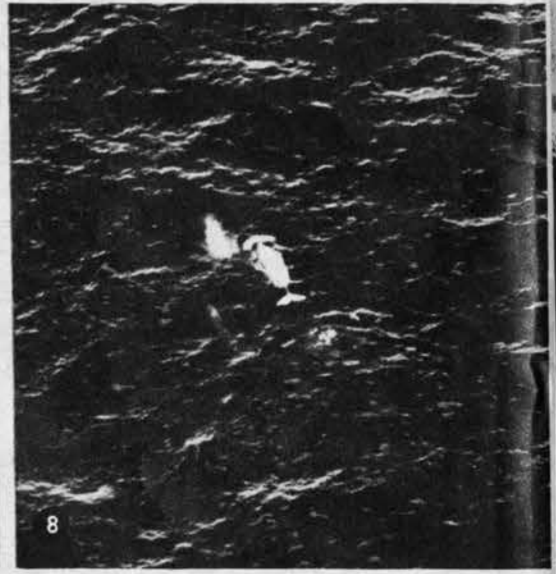
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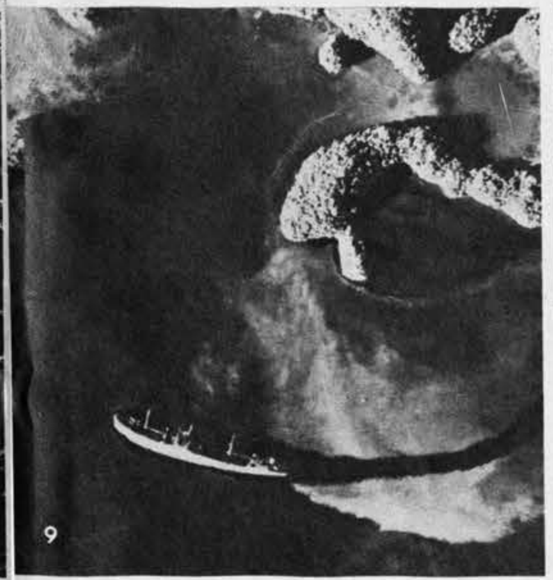
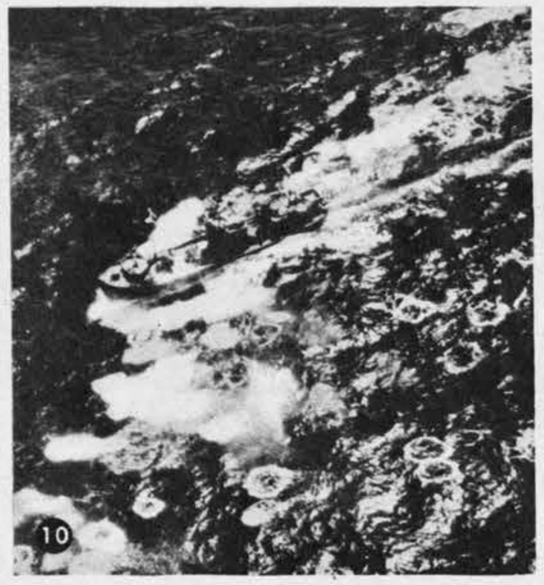
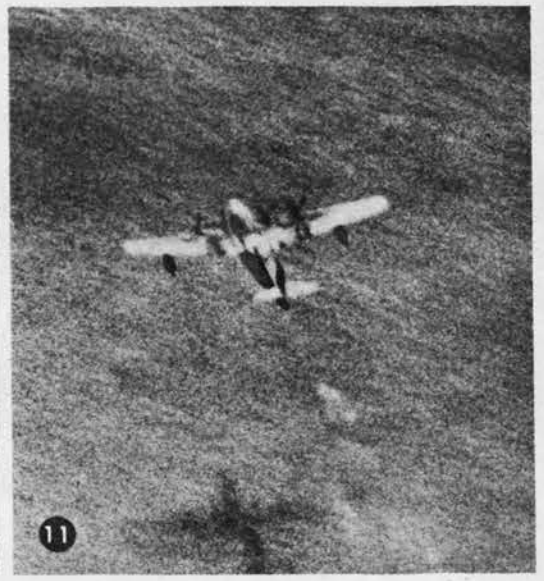

9


10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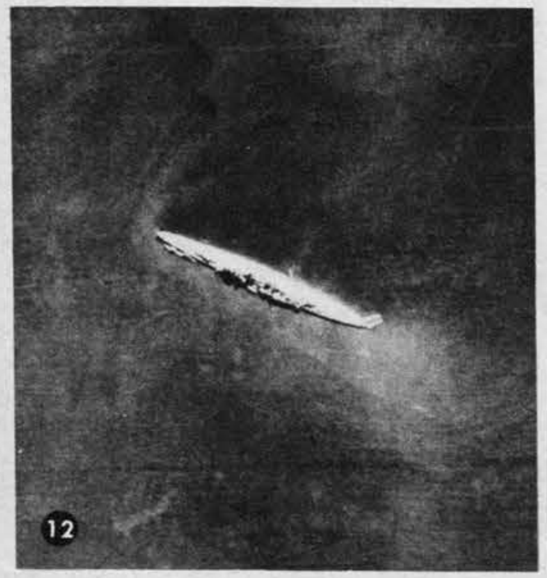
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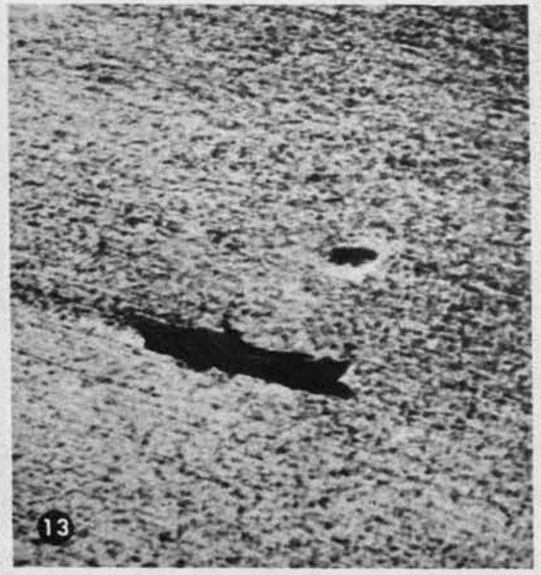
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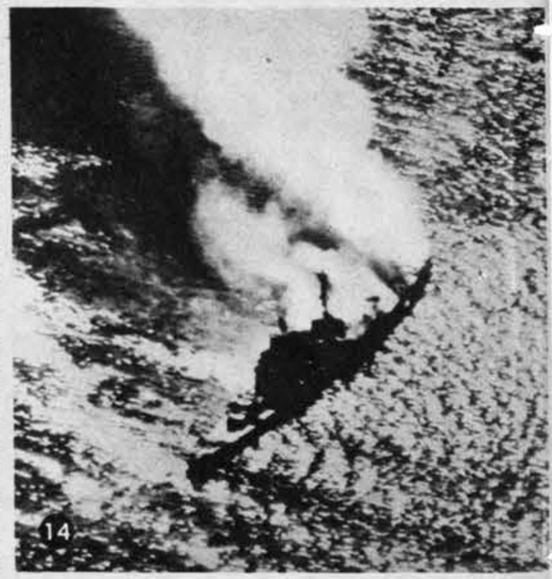
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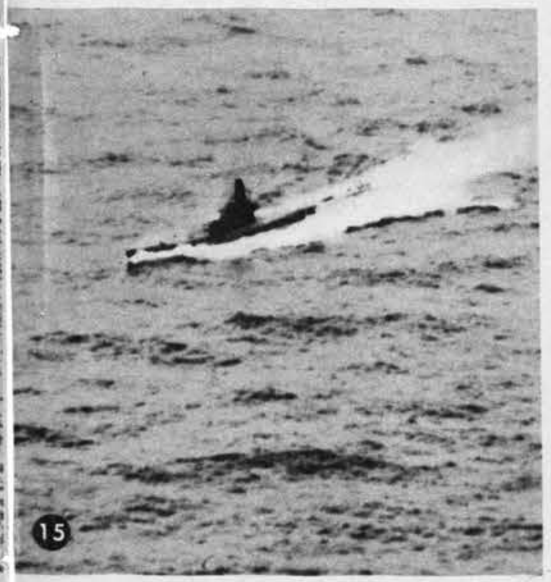
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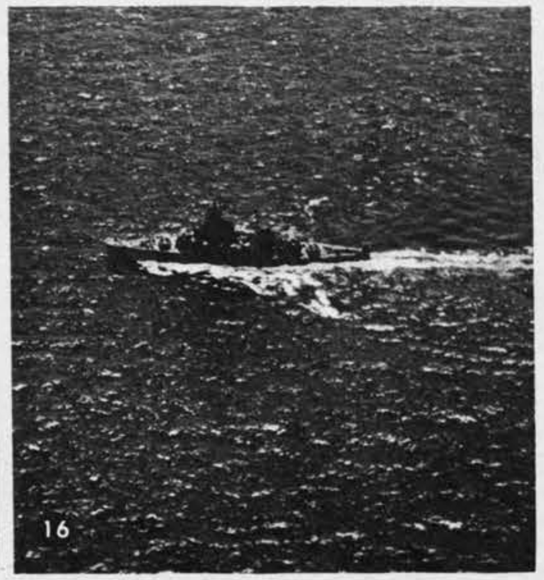
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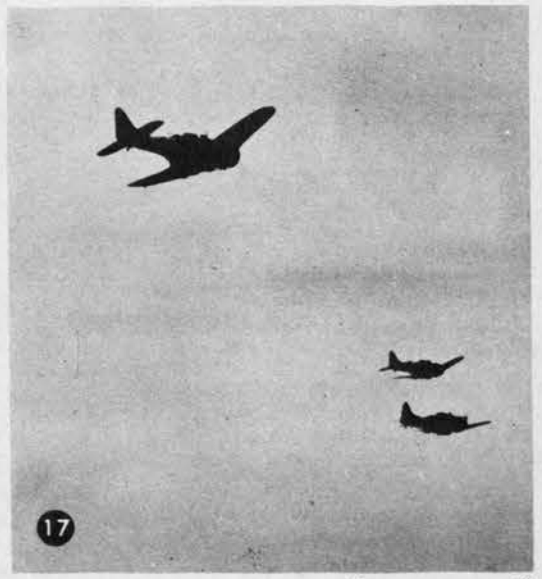
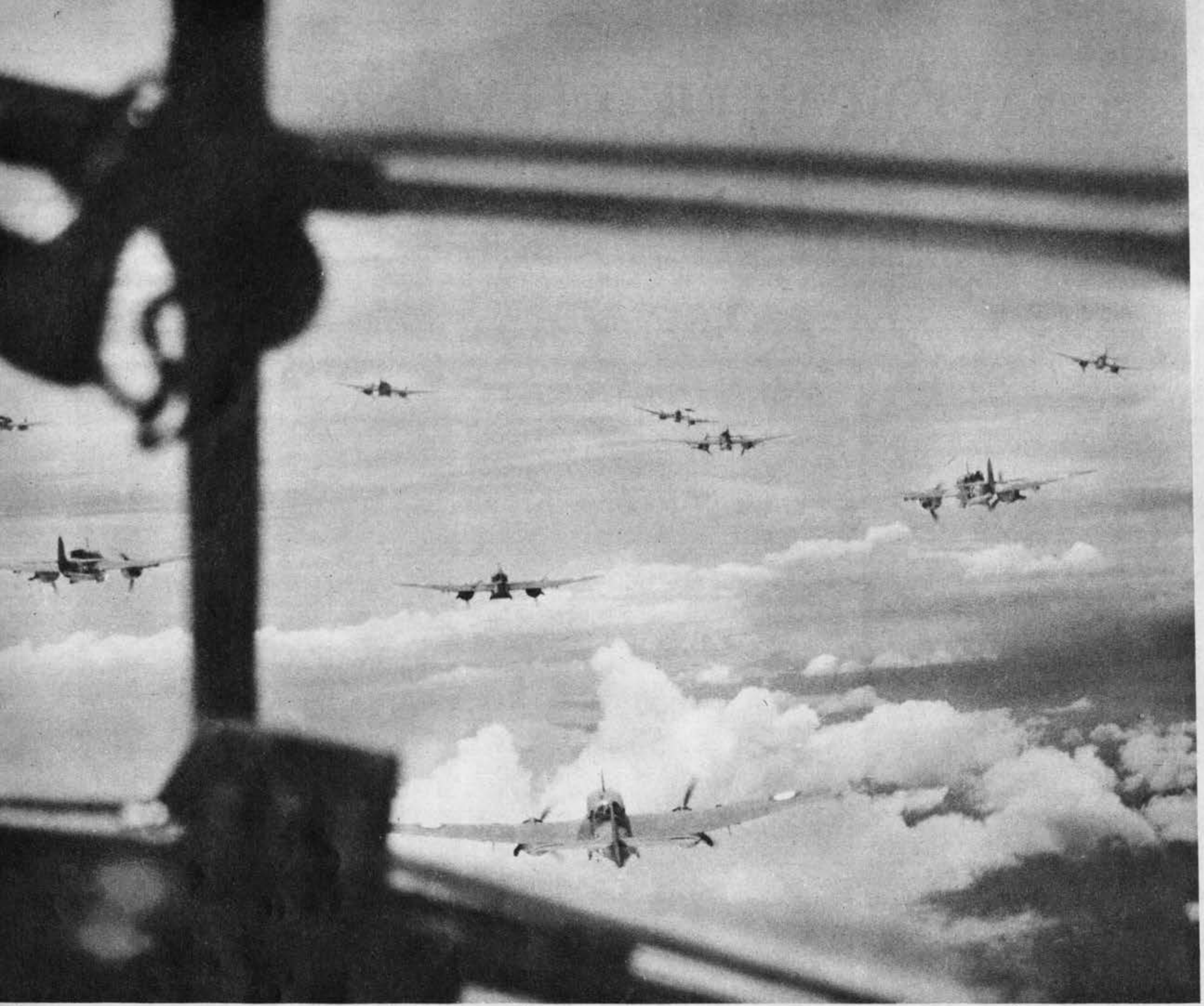
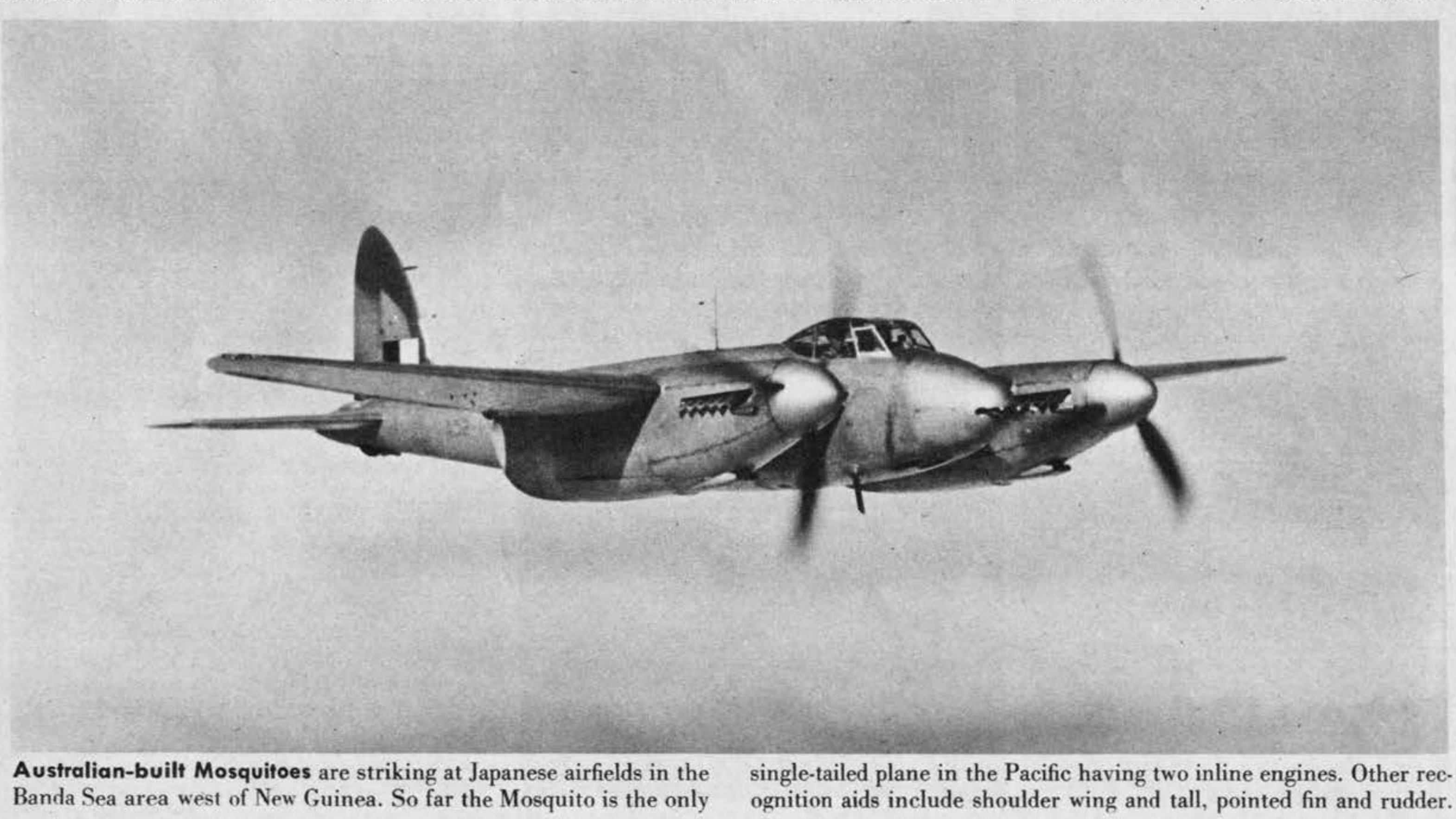

17

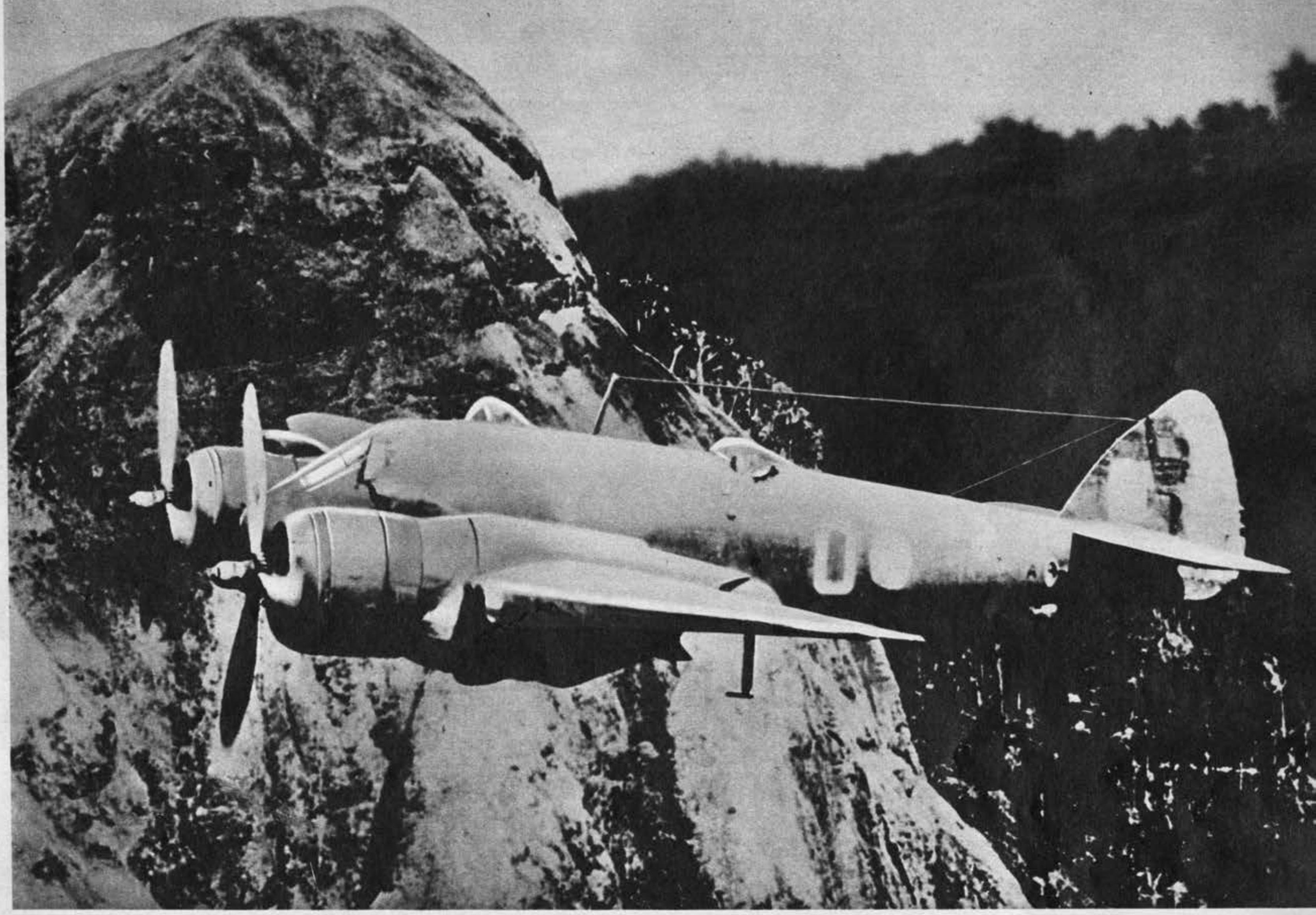
For answers see p. 48



BEAUFORT BOMBERS OF THE RAAF, OPENING BOMB BAYS OVER NEW BRITAIN, CAN BE RECOGNIZED BY RAISED CABINS, PROMINENT DORSAL TURRETS



Australian-built Mosquitoes are striking at Japanese airfields in the Banda Sea area west of New Guinea. So far the Mosquito is the only single-tailed plane in the Pacific having two inline engines. Other recognition aids include shoulder wing and tall, pointed fin and rudder.



RUGGED NEW GUINEA TERRAIN PROVIDES BACKGROUND FOR RAAF BEAUFIGHTER. TAIL AND WING ARE SAME AS ON BEAUFORT; NOSE IS SHORTER

PACIFIC ALLIES

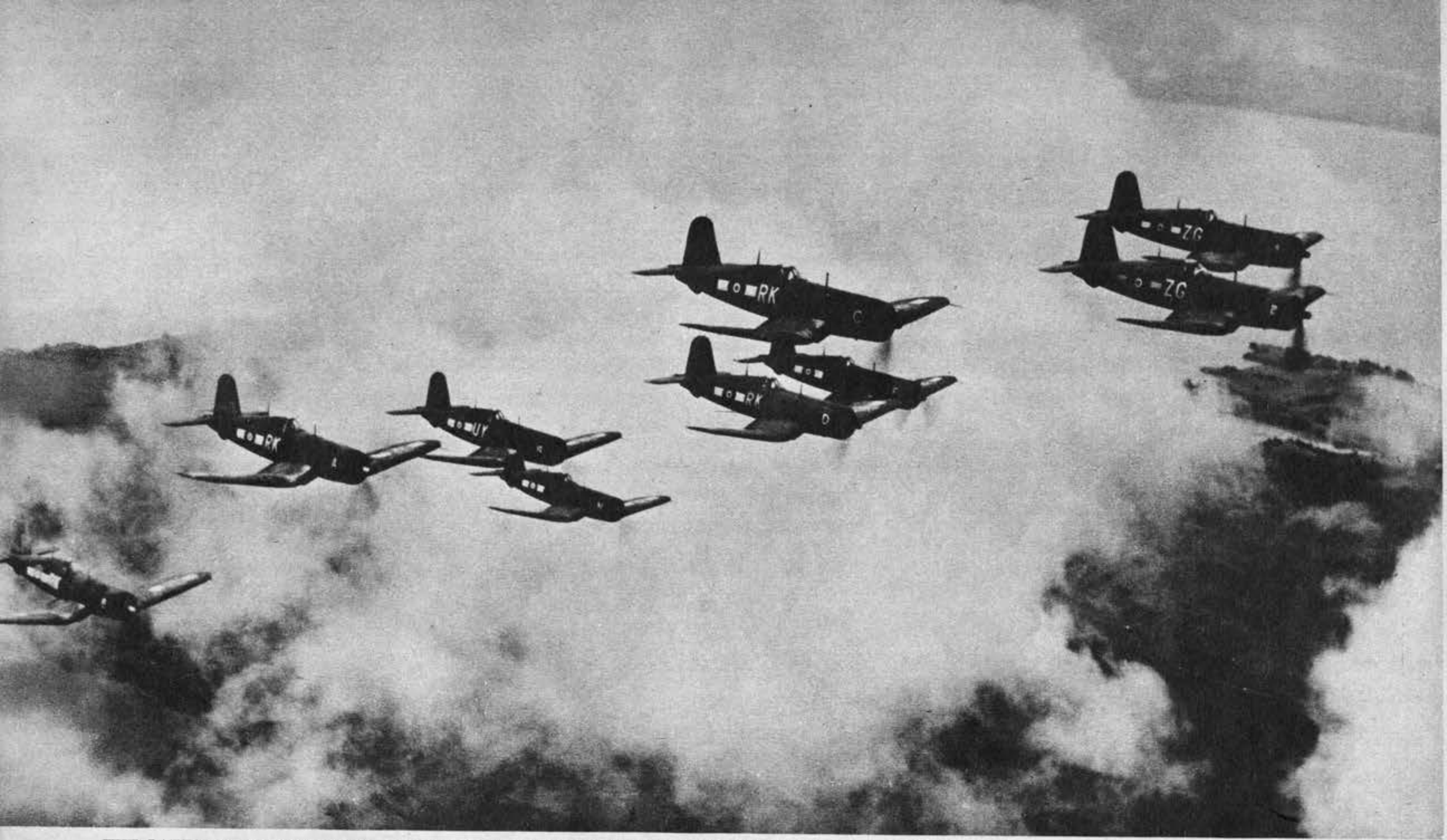
Reinforced RAAF and RNZAF add their weight to the Allied offensive against the Japanese

For the first two years of the war the Royal Air Forces of Australia and New Zealand joined their strength with the RAF to strike the Germans over Europe, North Africa and the Middle East. As a result, when the Japanese suddenly swept southward after Pearl Harbor the two Pacific Dominions were caught without first-line fighter or bomber strength. The Australians were forced to send up Wirraways (slow trainers and army cooperation planes) to battle the Japs over Port Moresby. The results were tragic. Meanwhile, in preparation for invasion, the New Zealanders strapped guns on their Harvard trainers (AT-6's). Fortunately they did not have to use them in combat.

But with the arrival of British and U.S. combat planes the Dominions were in a position to strike back. Flying Kittyhawks and Hudsons, the Australians ripped into Japanese forces threatening Milne Bay and Port Moresby in August and September 1942. In the great Bismarck Sea slaughter the following March, strafing RAAF Beaufighters stripped Japanese cargo ships of their AA defense, clearing the way for skip-bombing A-20's and B-25's of the Fifth AAF. Australian Beauforts from New Guinea repeatedly blasted Rabaul at night, softening the defenses for daylight raids by Solomons-based U.S. B-25's and RNZAF Venturas.

At present the New Zealanders, temporarily left behind by the Allies' westward offensive, have shifted their Corsair fighter squadrons from ComSoPac control to that of the 13th AAF. Meanwhile their Venturas and Catalinas are continuing to fly patrol missions over the Solomons and New Hebrides. As for the Australians, their main effort is the protection of General MacArthur's southern flank with Liberator and Beaufighter attacks against Japanese air bases west of New Guinea.

With the increased production of Beauforts and Mosquitoes in Australia, RAAF bomber activity is certain to increase. Veteran RAAF crews from Europe are flying the Mosquitoes, while experienced New Zealanders pilot their own fighters and patrol planes. Both are entitled to quick, accurate recognition by their U.S. allies.

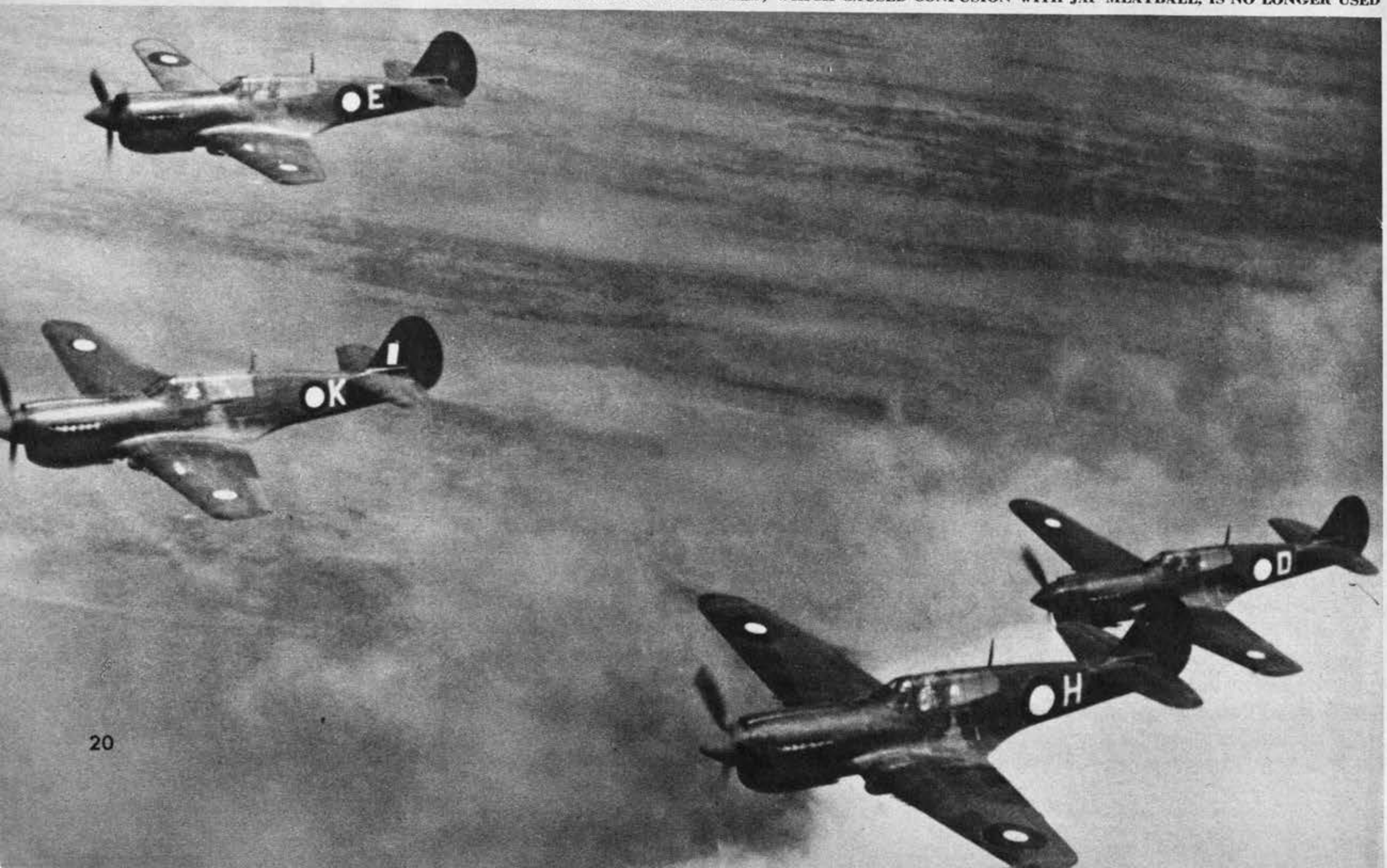


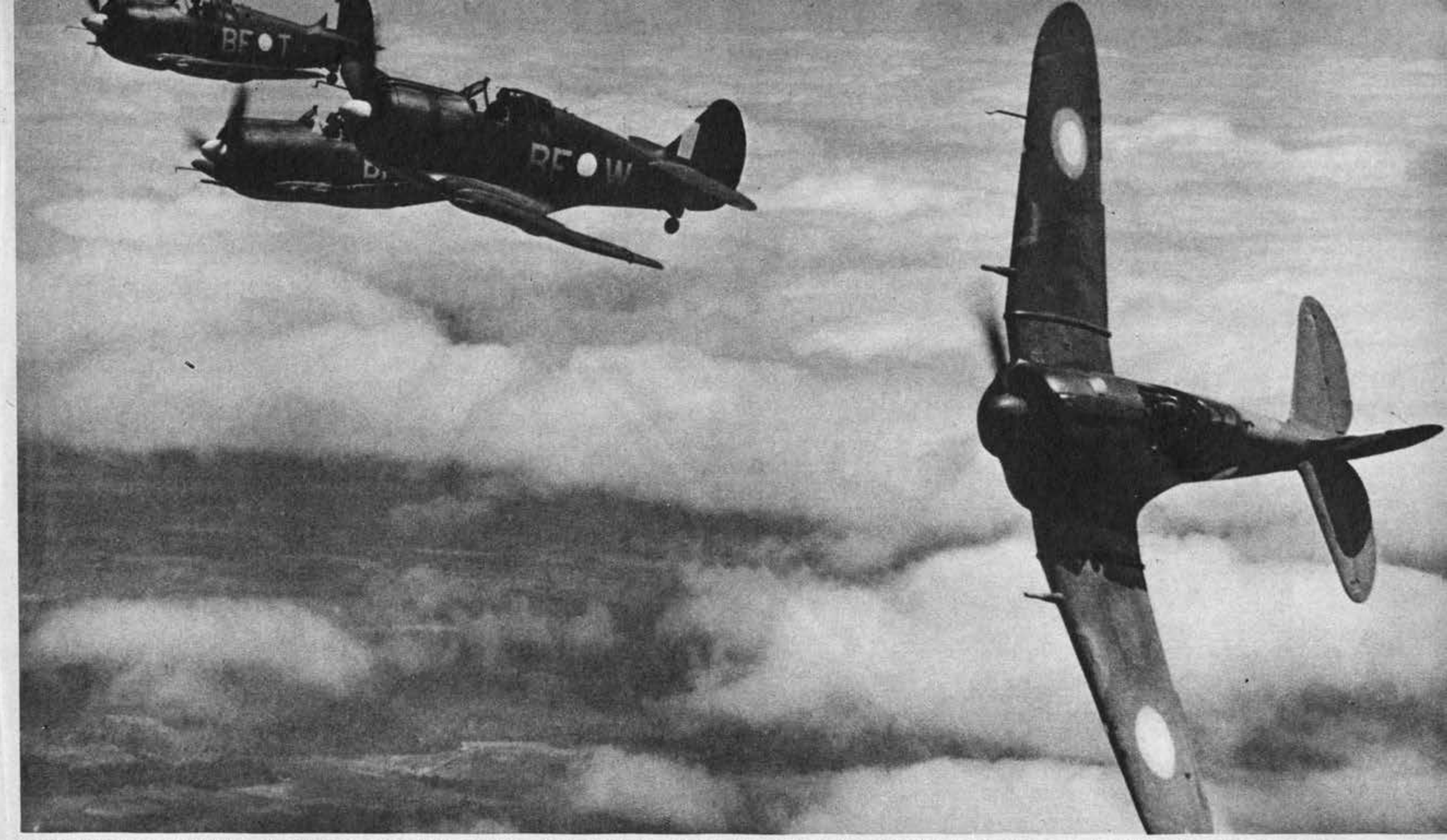
THE LATEST RNZAF MARKING, A BLUE AND WHITE ROUNDEL OVER A WHITE BAND, IS DISPLAYED BY THIS FORMATION OF NEW ZEALAND CORSAIRS

FIGHTER TYPES WITH THE TWO DOMINION AIR FORCES

The same superb skill and daring shown by Australian and New Zealand pilots in their fight against the Luftwaffe is now being manifested in the Pacific. The first shore-based air support given U.S. troops fighting their way into the Admiralties, Morotai and New Guinea's Vogelkop Peninsula, came from an RAAF Kittyhawk fighter-bomber wing. At least 100 Japanese planes were destroyed over Bougainville and Rabaul by RNZAF Warhawk pilots

AUSTRALIAN MARKINGS ON THESE KITTYHAWKS ARE WHITE AND BLUE. RED, WHICH CAUSED CONFUSION WITH JAP MEATBALL, IS NO LONGER USED





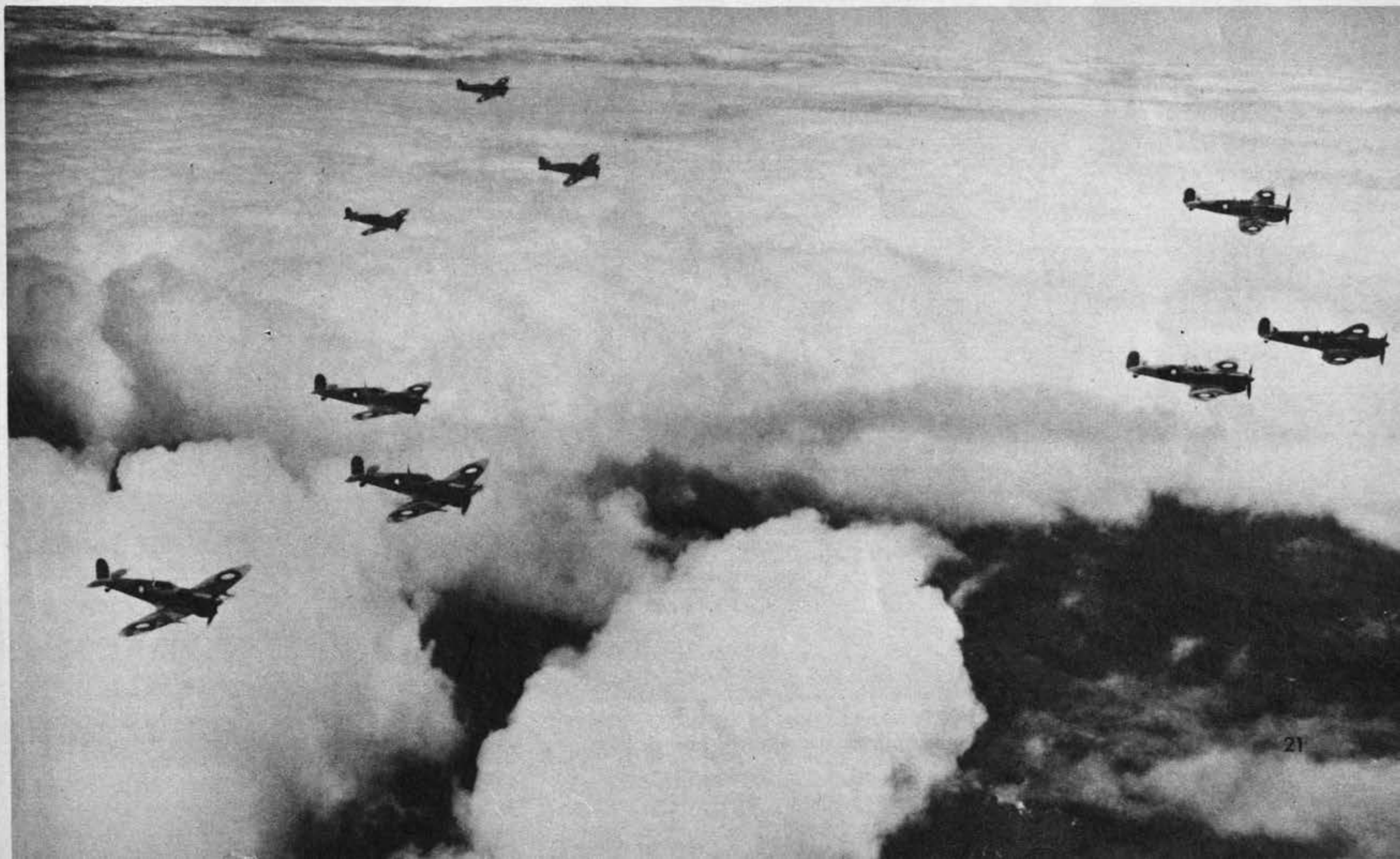
PEELING OFF TO ATTACK, BOOMERANG SHOWS UNIQUE WING. TRAILING EDGE IS STRAIGHT; LEADING EDGE TAPERS ON OUTBOARD PANEL ONLY

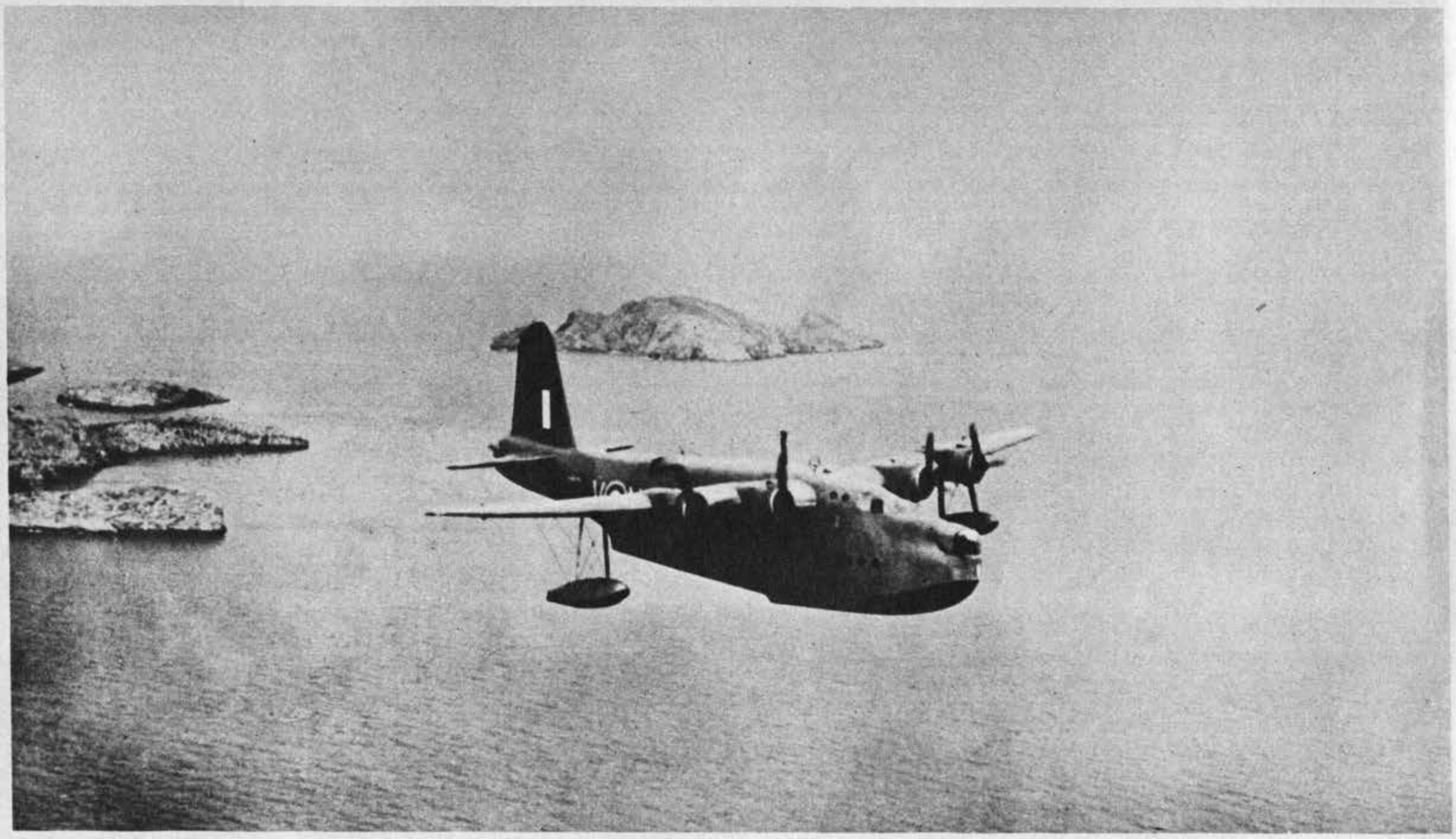
when New Zealand fighter activity was concentrated in the Solomons. Warhawks have now been completely replaced by faster Corsairs as RNZAF fighter squadrons move into New Guinea.

With the Boomerang the Australians have specialized in jungle artillery spotting, strafing and reconnaissance. Extremely successful over New Guinea, Boomerangs are now operating over New Britain as well. They are short, chunky planes with round noses. This has led to their being taken for Zekes which they otherwise do not resemble. The combination of rounded rudder, faired cockpit and wing with a horizontal inboard panel should distinguish the Boomerang from any Jap fighter now in service.

Australia's leading defensive fighter has been the Spitfire VIII. This model has unusually pointed wingtips. It carries a tropical filter under the engine, giving the nose a thick, heavy appearance.

RAAF SPITFIRE VIII's HAVE A SMALL FIN AND RUDDER ROUNDED ON TOP, POINTED WINGTIPS AND NOSE MADE BULKY BY THE TROPICAL FILTER

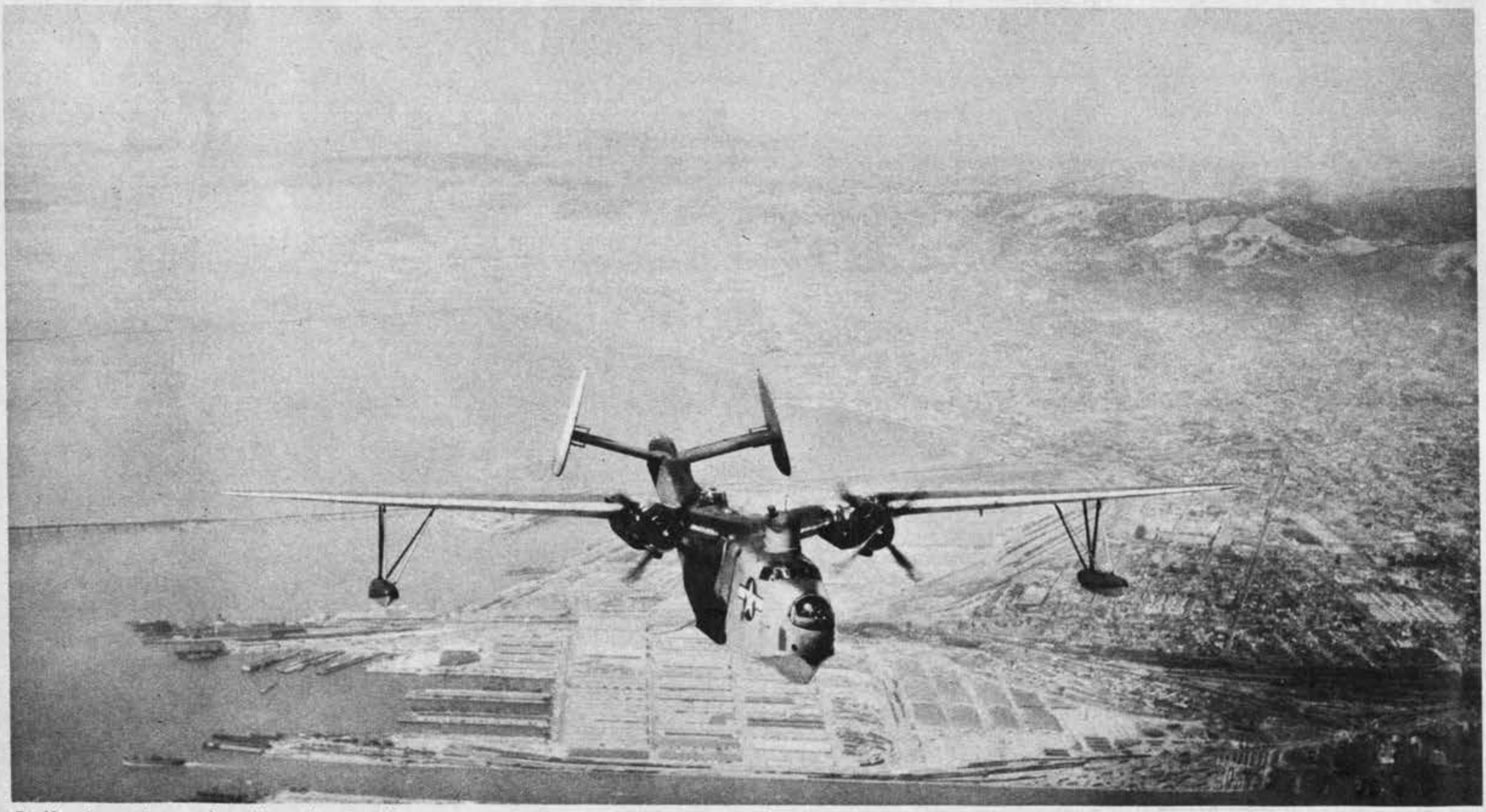




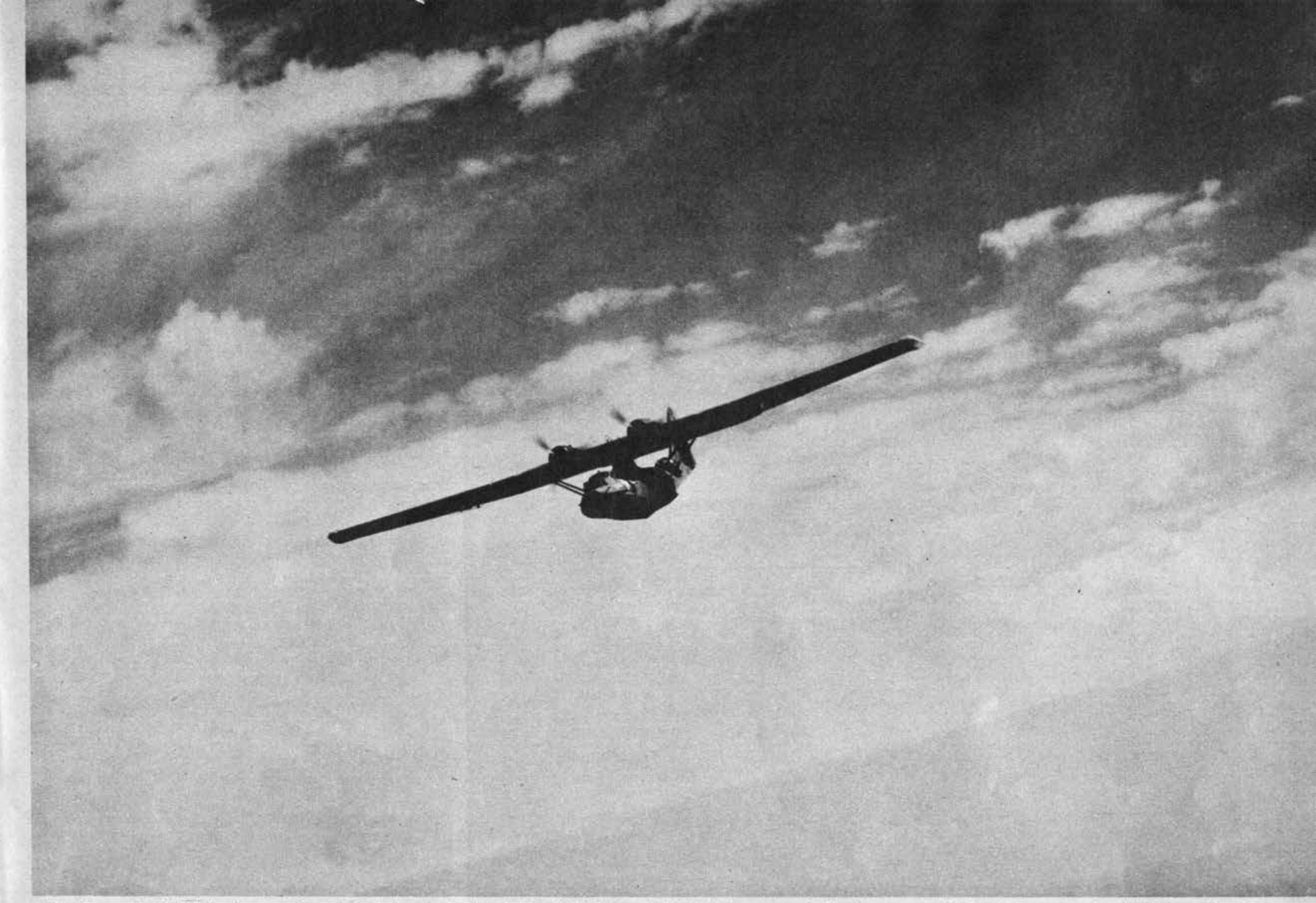
SUNDERLAND'S BLUNTER NOSE, DEEPER FUSELAGE AND TALLER FIN AND RUDDER SHOULD HELP DISTINGUISH IT FROM THE JAP FLYING BOAT EMILY

FOUR AUSTRALIAN & NEW ZEALAND PATROL BOMBERS

Australian and New Zealand patrol planes include the Sunderland, Catalina, Mariner and Ventura. They operate from the Fijis to the Timor Sea, searching for Jap submarines while scanning the Banda Sea area and the Solomons for surface movements. Only the Australians are using the Mariner at present while both Australia and New Zealand operate the others. New Zealand's Venturas are scheduled for eventual replacement by PV-2 Harpoons.

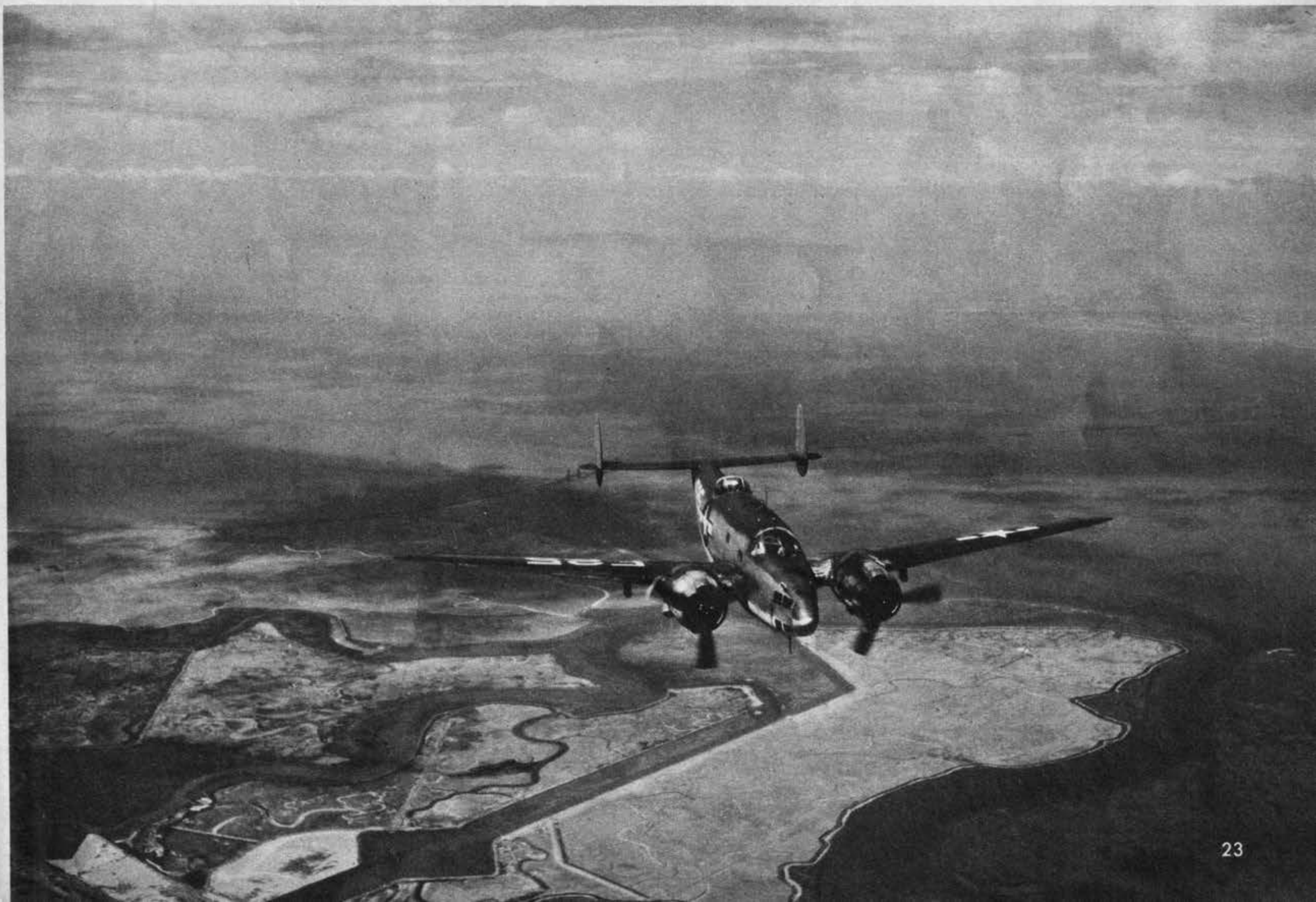


Gull wing alone should make the Mariner easy to recognize. Other important features are the deep and narrow hull, the sharp dihedral of the tailplane and the pronounced slant of the twin fins and rudders. A large radome forms a prominent bulge over the Mariner's cabin.

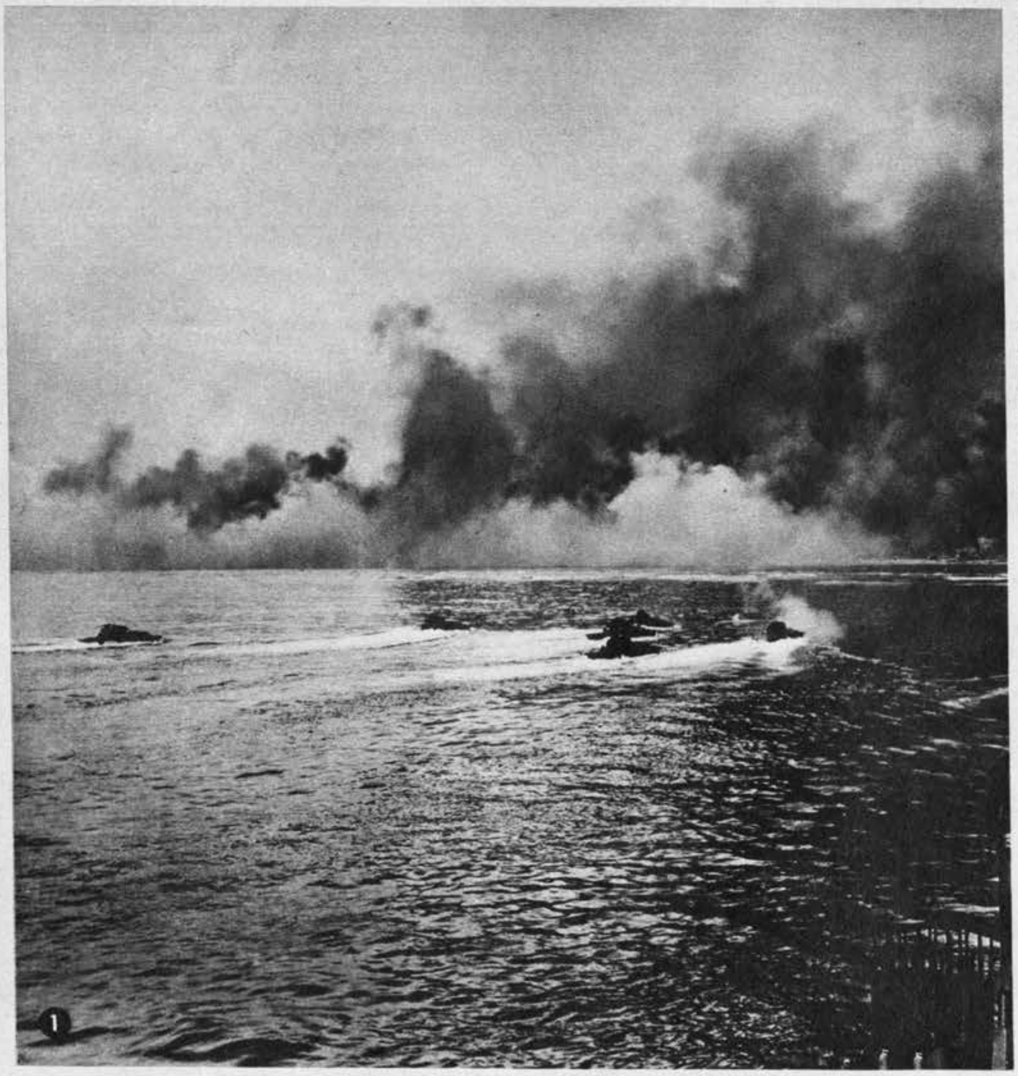


RNZAF and RAAF both use Catalina (*above*), theirs being PBY's or Canadian-built PB2B's which differ slightly from the PBN Nomads. Note the shallow hull and prominent gun blisters on the back.

RNZAF Venturas helped saturate Rabaul, are now used for patrol as well as bombing. Unlike most U.S. twin-engine bombers, the Ventura does not have its nacelles extending behind the wing's trailing edge.



QUIZ NO. 3: ARMOR ON LAND AND SEA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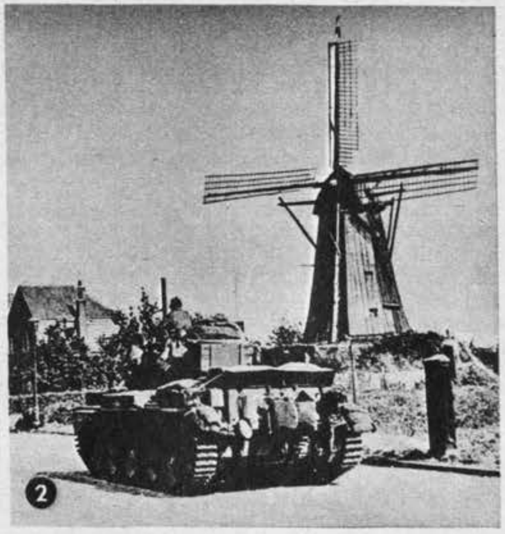
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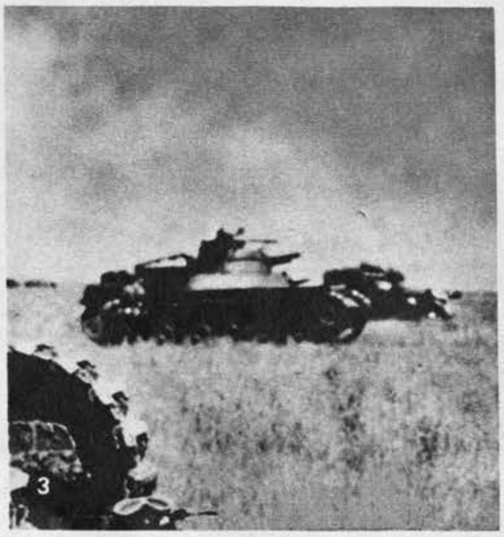
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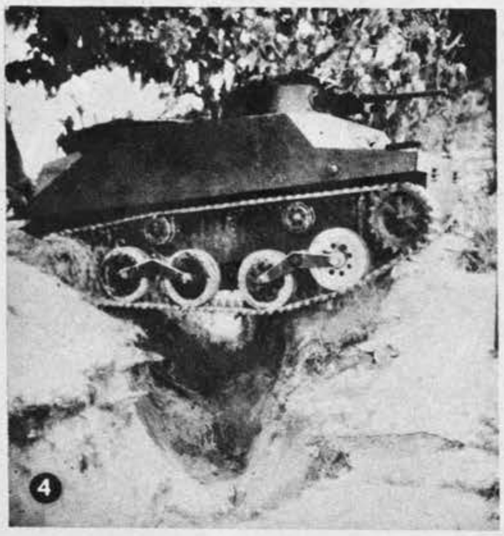
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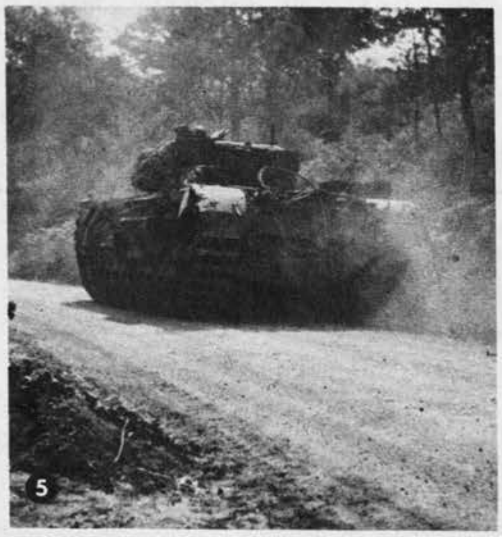
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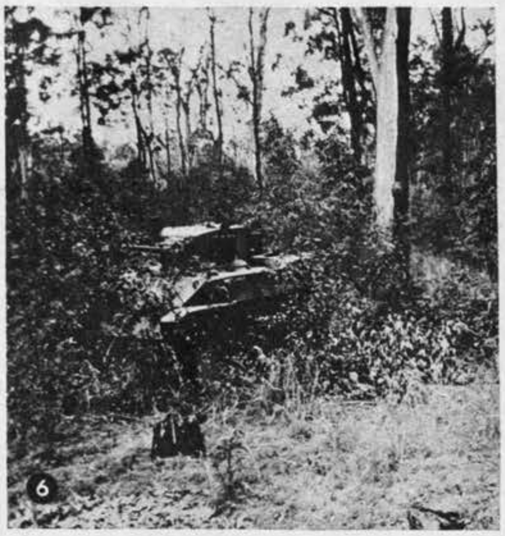
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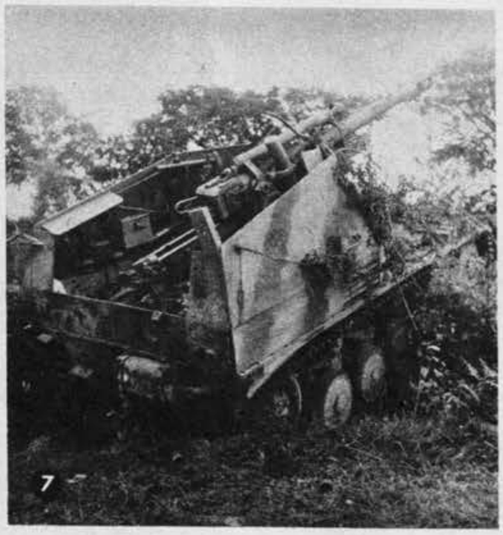
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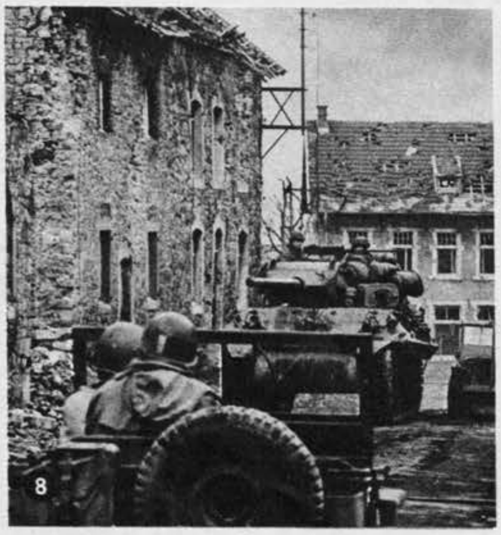
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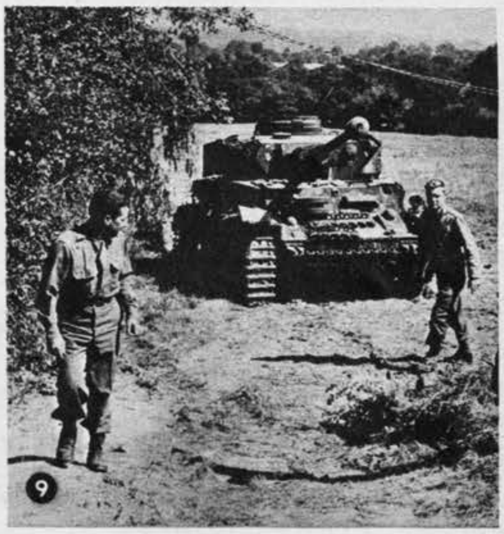
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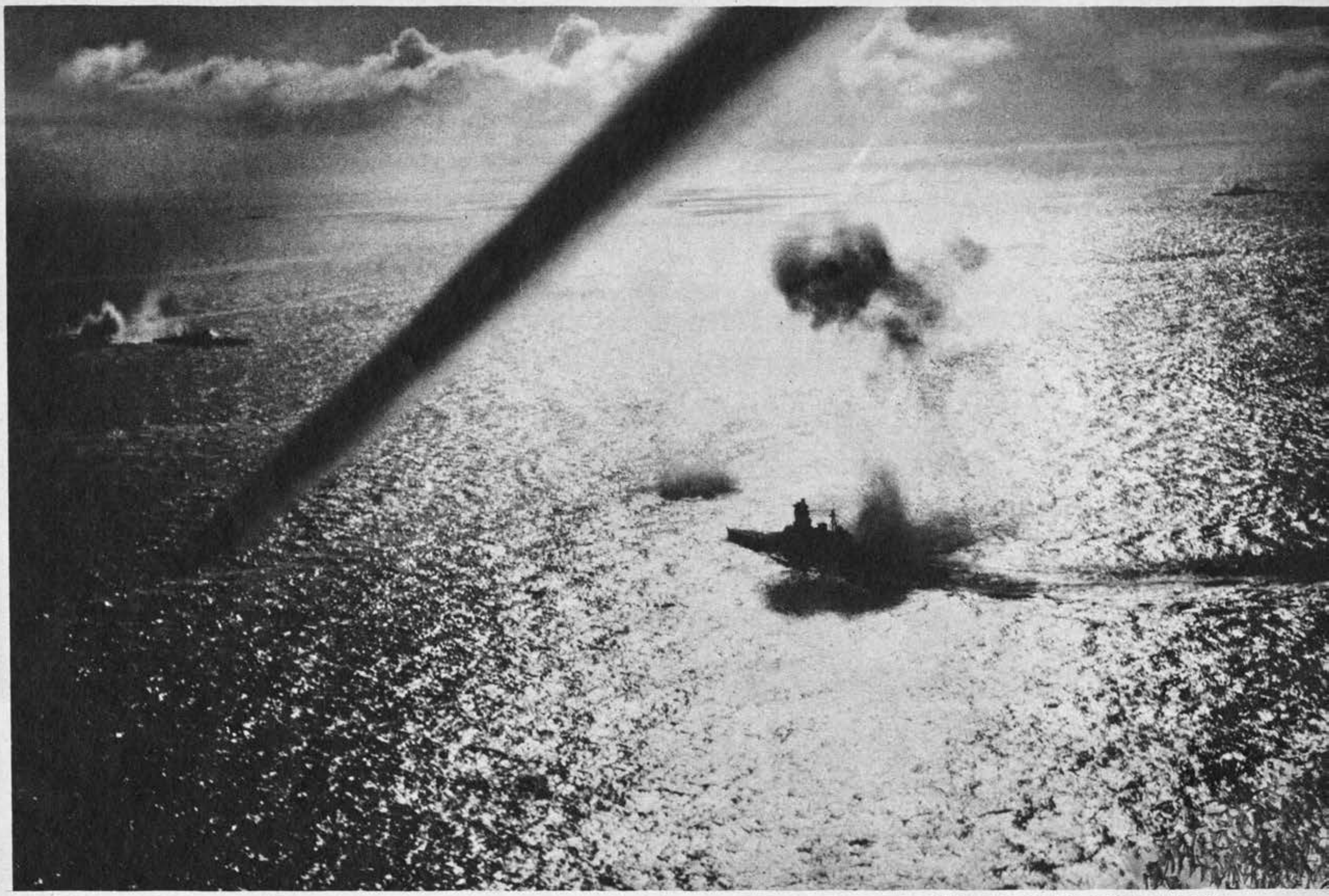
For answers see p. 48



BOMBER'S TAILPLANE HANGS LIKE THREATENING BLADE OVER TWO KONGO CLASS BB'S. WARSHIP DODGING BOMBS AT LEFT IS A TONE CLASS CA

JAPAN'S NAVY

1944 BROUGHT MANY CHANGES IN THE ENEMY LINE-UP

As we enter the fourth year of war in the Pacific, it is time for another long look at the Japanese fleet. Although the Japanese continued to decline major engagements well into 1944, they suffered steady attrition of war vessels from U. S. air and undersea attacks. In the second half of the year, the mounting strategic tension of our advance finally exploded in two great battles off the Philippines. For the first time the Japanese came out in strength only to limp back a battered and altered navy.

All changes in the enemy array have not been of this happy sort, however, for Japan has put a number of new and important warships into service. *Journal* readers have noted these developments singly, but now it is time to total up all killings and reinforcements to determine the Japanese line-up for 1945.

Although still a powerful and dangerous opponent, Japan's navy has taken a terrific pounding. Capital ships have been sunk and damaged, while destruction among cruiser and destroyer screening forces further handicaps the battle line. Even more crippling is the decline of Japanese naval aviation. Carrier strength has been reduced; land bases have been beaten down in a relentless series of raids; heavy losses have been inflicted on planes and trained personnel.

The enemy's over-taxed shipyards and foundries will be hard-put to fill these fresh holes in the naval front. Already they have fallen behind the tremendous expansion of our Navy, and Japan has had to depend much more than the U. S. on her prewar fleet. New Japanese designs have appeared, but in insignificant numbers compared with our wartime reinforcements. Though they may be excellent ships, Yamatos must face the firepower of our Iowa and South Dakota Classes. The wartime Taiho, Hayatakas, and Zuihos cannot compete with the dense ranks of our Essex and Independence Class carriers. Only a few light cruisers have been launched to offset the Cleveland and Atlanta flotillas.

We must nonetheless expect the Japs to readjust strategy and at least partially recover their balance. We face a wily, resourceful opponent and must remain constantly on our guard. Though on a smaller scale than the U. S., Japan presumably has an energetic shipbuilding program. The damaging reverses of 1944 should make the Japs redouble their efforts to send new and more efficient ships down the ways. From a recognition standpoint new types that have already been spotted are significant, since in most cases they are definite departures from traditional Jap design. These additions are included with older classes still operational in a profile summary on pages 26 and 27, while the best fresh pictures of new and old are shown on pages 28–33.

JAPANESE NAVAL VESSELS

PRINCIPAL COMBATANT TYPES BY CLASSES

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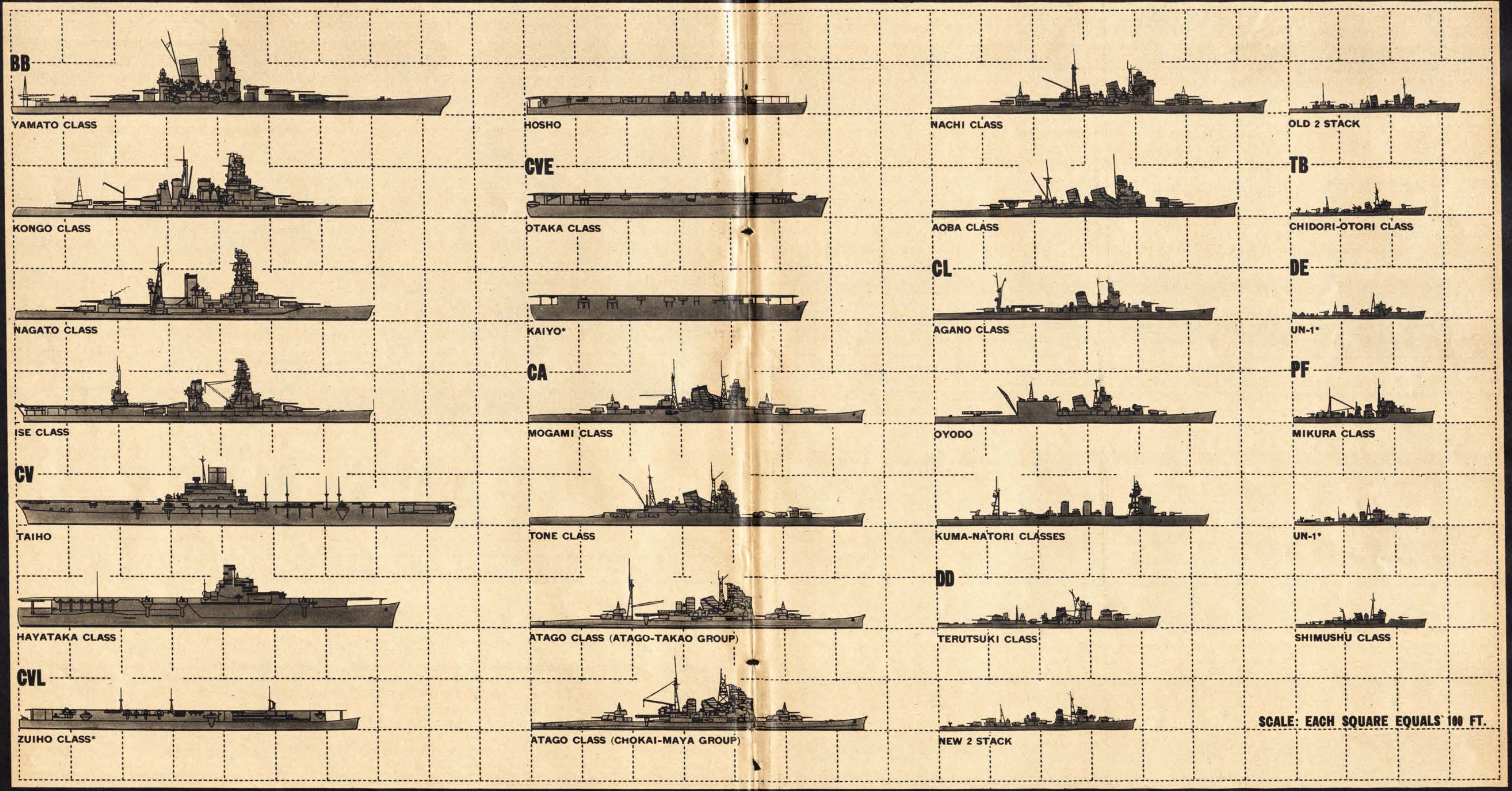
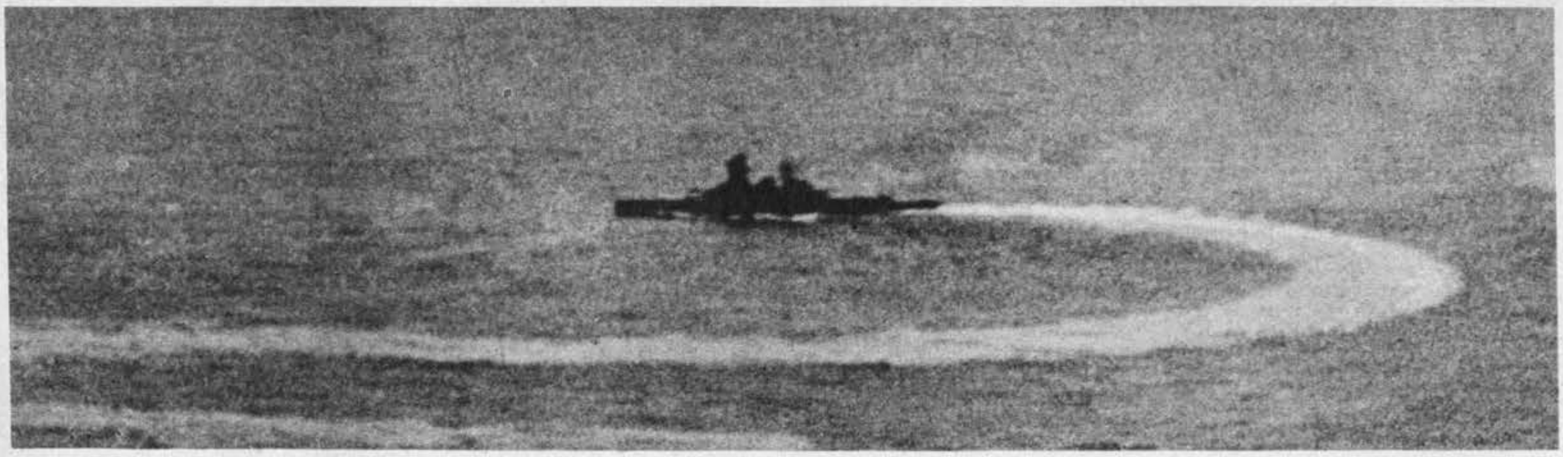


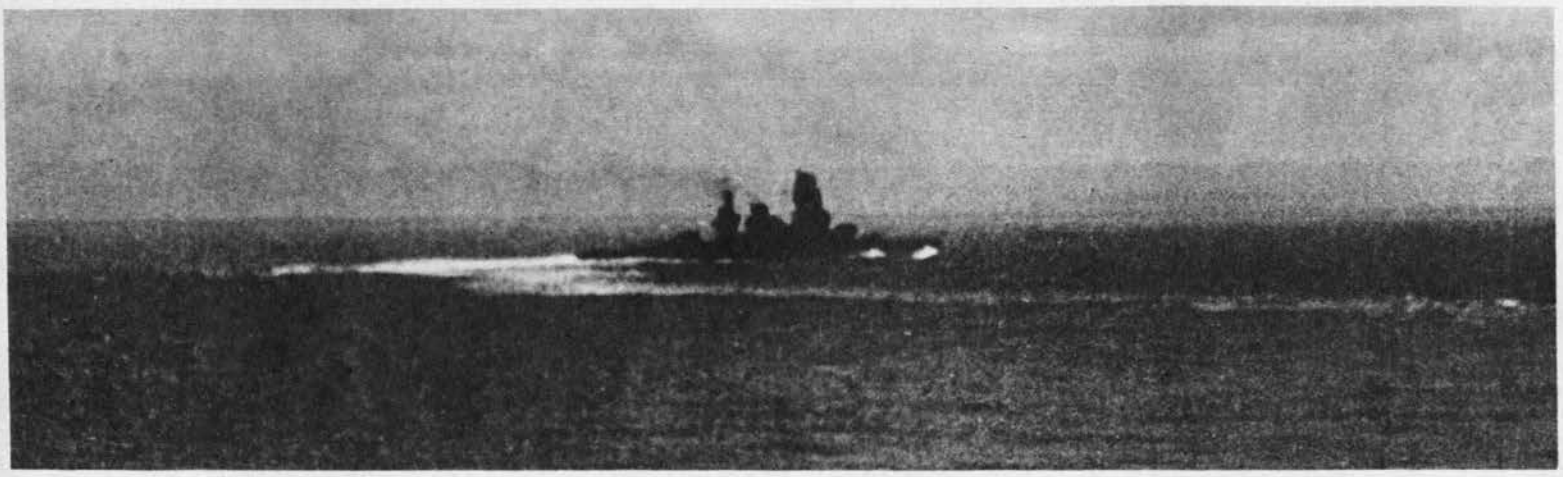
On this two-page chart of the Japanese Navy, the *Journal* presents a concise summary of the changes that have occurred in the enemy's recognition line-up during 1944. Allied attack has rendered several familiar classes extinct and made the status of others doubtful. Certain of the types shown are believed to be sunk, but for the time being they will remain on the Training List. Although losses have simplified the old list for recognition students, the enemy has been reinforced in every category by new designs. Here they are gathered together with the older types in a unified picture of the Japanese Navy as it is today.

Explanation may be needed regarding the listing of certain classes. The Ise Class has been left under the BB category although the addition of short stern flight decks may give these two units the classification of BB-XCV. Japan's destroyers, except the single-stack Terutsuki, have been grouped under two general headings—"Old Two Stack" (here represented by the Mutsuki) and "New Two Stack" (represented by the Takanami). Asterisks indicate that the silhouette shown is provisional.

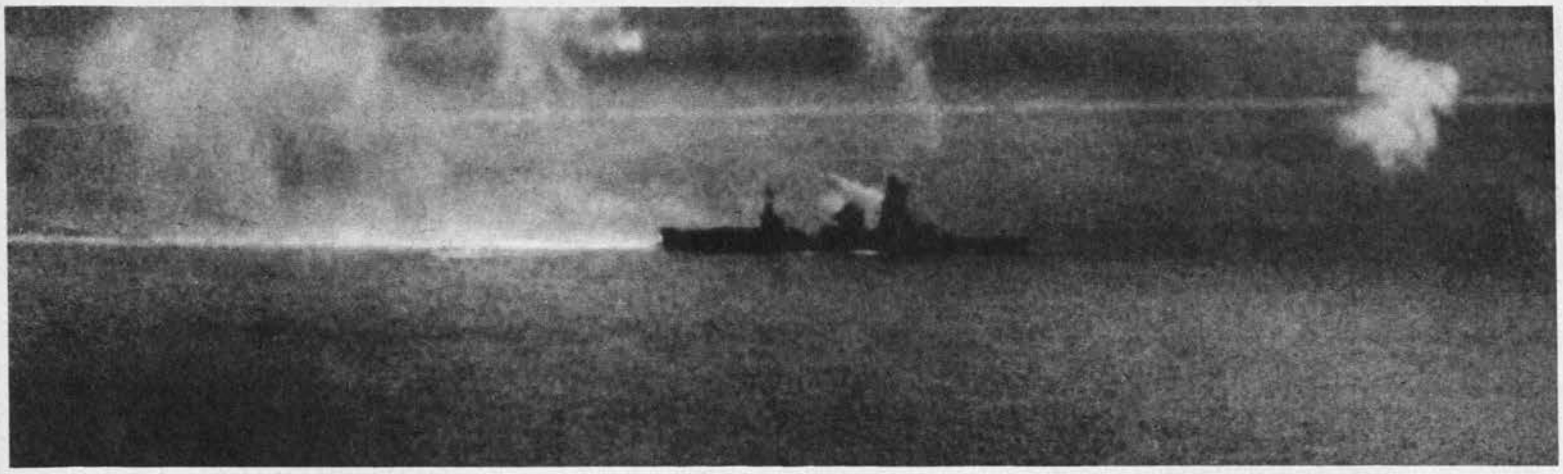
JANUARY, 1945



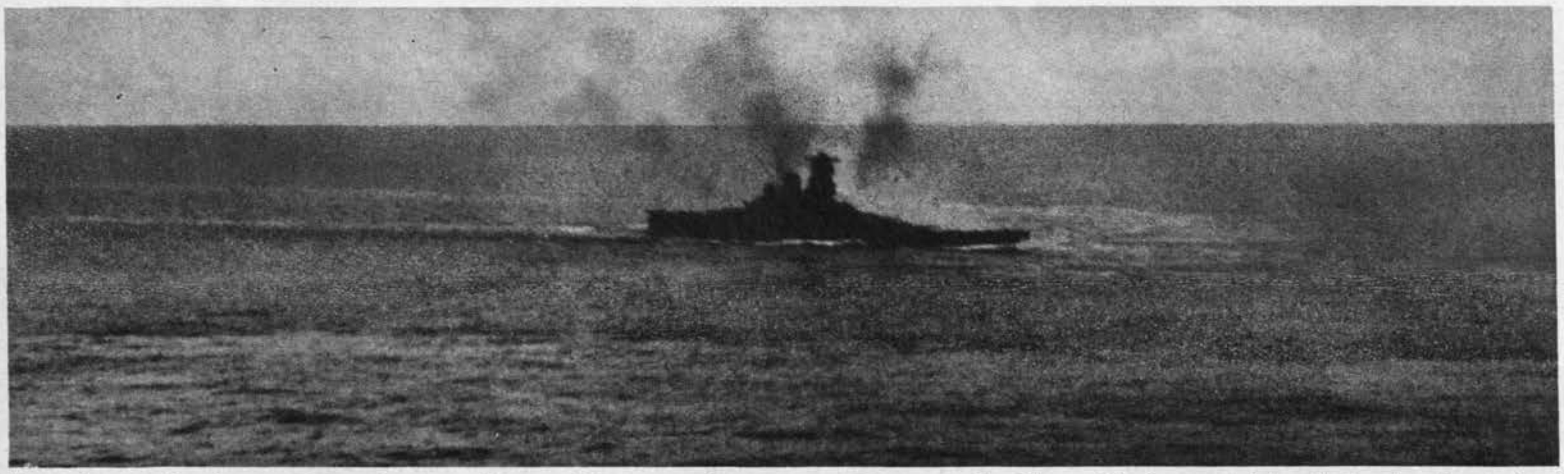
Twin stacks, unique for a Jap battleship, distinguish the old Kongo Class. Tripod mainmast rises between, partly enclosing after stack. Originally designed as battle cruisers, Kongos carry only eight 14-in. guns in twin turrets, but have high speed expected of battle cruiser.



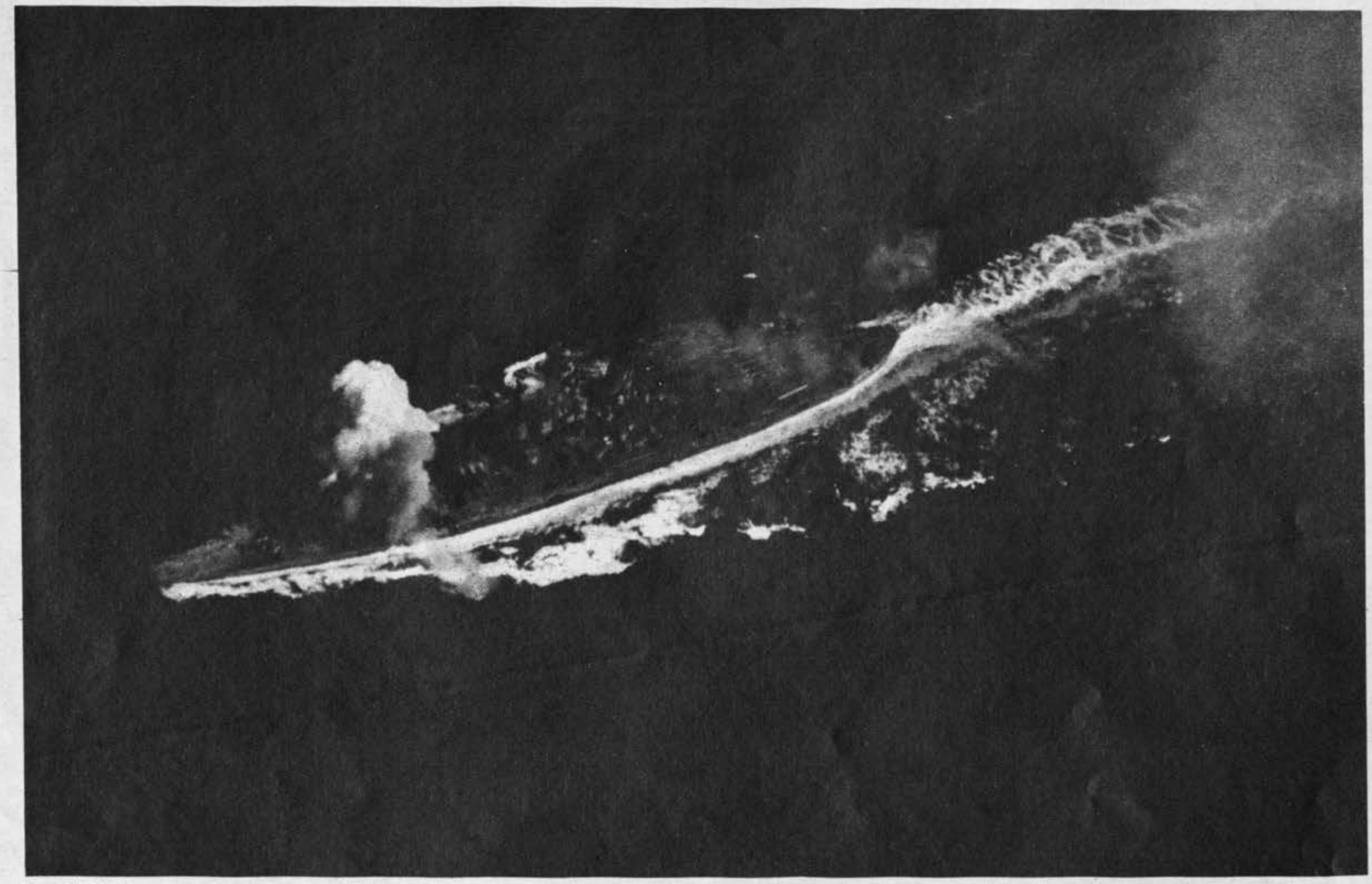
Swerving Nagato Class BB displays the three separated vertical elements of its superstructure. The Nagatos have a massive foretower, heavy single stack and substantial mainmast, but superstructure is more closely spaced than on Ise Class (*below*) or extinct Fuso and Yamashiro.



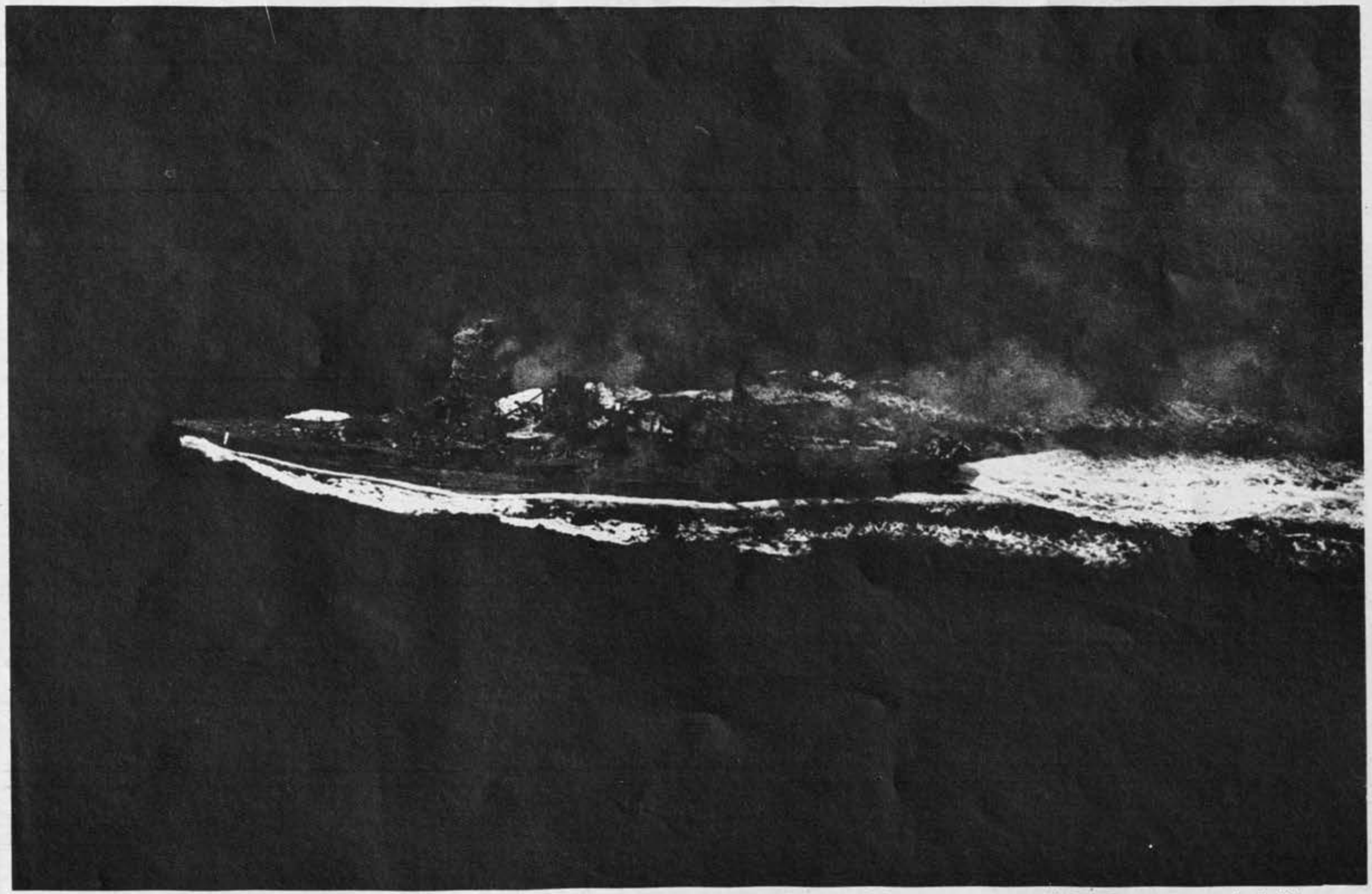
Low freeboard of the older Japanese battleship design has been broken on rebuilt Ise Class by the stern flight and hangar decks. Present version has superimposed turret group forward and another between stack and mainmast. Note cluster of searchlight platforms around stack.



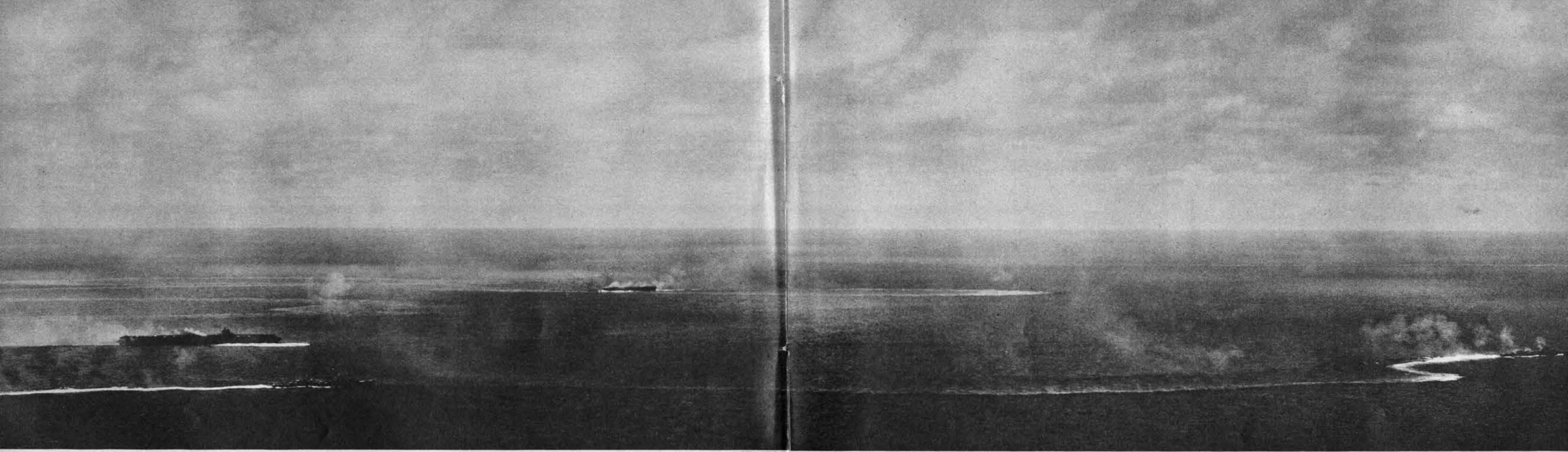
Massed superstructure amidships sets new Yamato Class apart from rest of battle line. Towering Jap foremast structure is retained, but in concise, streamlined form. The huge stack is raked and mainmast is of raked-stick variety. The forward gun deck has clean and spacious sweep.



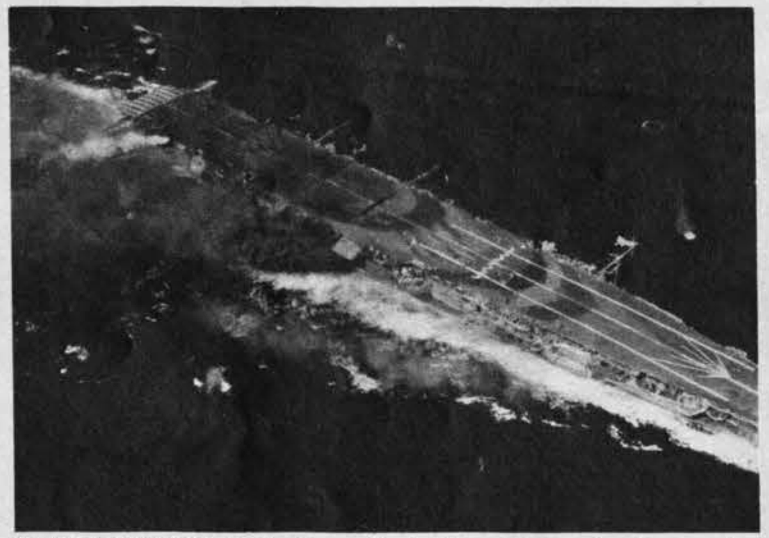
Detailed close-up shows Yamato superstructure to be concentrated, but more cluttered and less symmetrical than on modern U. S. BB's. Nine 16-in. guns are carried in two big turrets forward, one aft, supplemented by triple-turret secondary battery in superfiring positions.



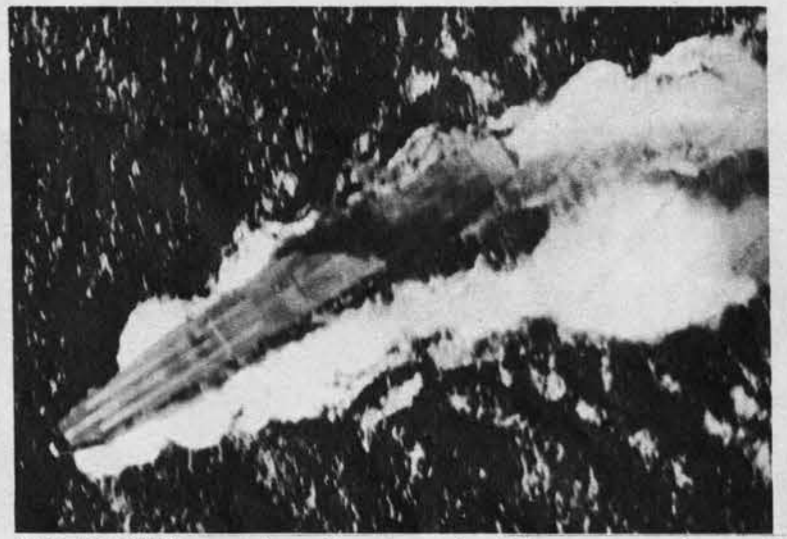
Battleship-carriers of Ise Class may be a Jap attempt to combine long-range striking power of the carrier with a battleship's short-range firepower and durability. An estimated 25 planes are carried. These are launched by catapults which are placed on either side of the mainmast.



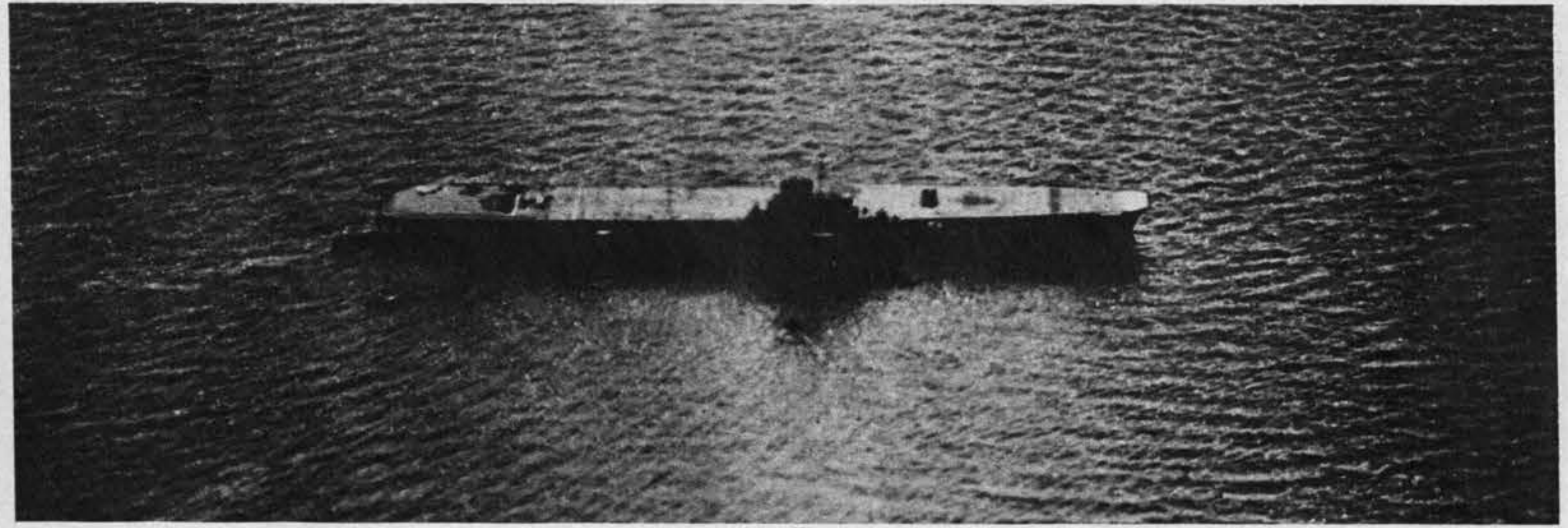
Carriers and destroyers are two fleet divisions where the Japanese have suffered heavily. In the phase of the second Philippine Sea battle pictured above, a Zuikaku and Zuiho (*left, center*) circle futilely shortly before being sunk by U. S. planes. Escorting destroyers of Terutsuki Class perform evasive maneuvers in foreground. Only single-stack Jap DD's, the Terutsukis are 2,300-ton super-destroyers, which have often been mistaken for cruisers. Although large and heavy-set, they retain cluttered destroyer profile. Eight 4-in. guns are carried in twin turrets.



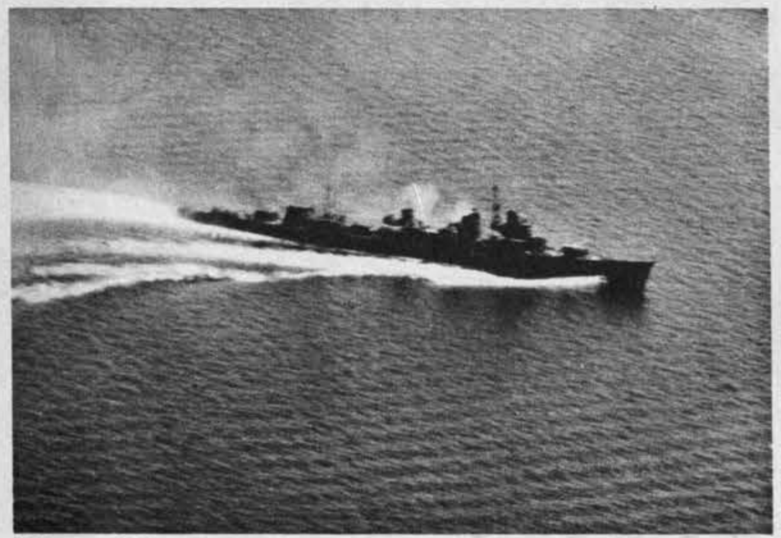
Under forced draft, Zuiho flees with thick smoke pouring from typical Jap side vent. Paint stripes highlight beveled fantail, signal platforms.



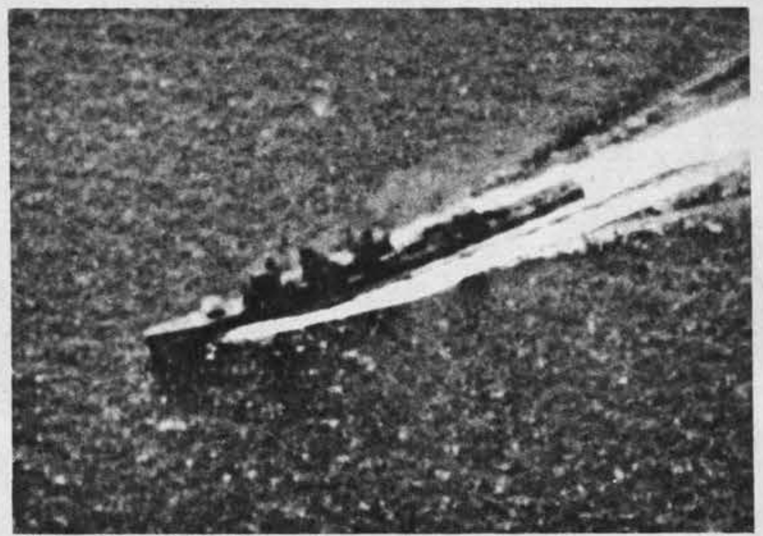
Wheeling Zuiho, seen from directly overhead, has narrow and tapered flight deck. After battle only one unit of Zuiho Class CVL's was afloat.



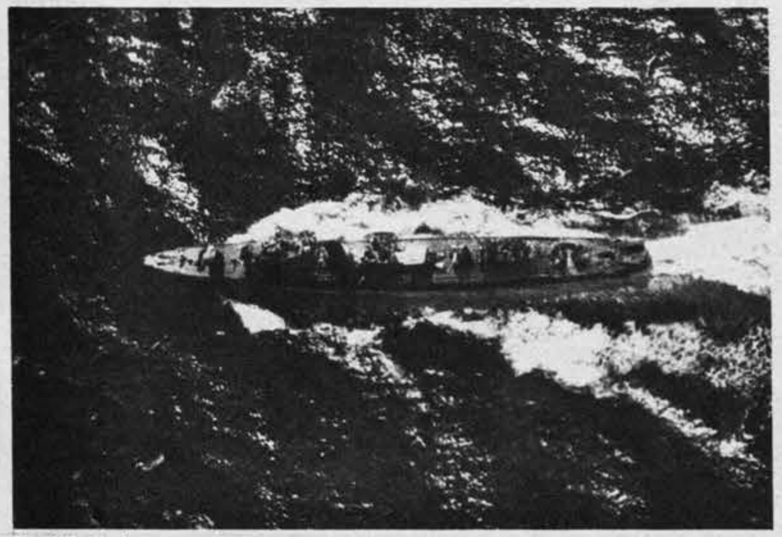
New, big Taiho differs from former Japanese carriers. Note the full-length flight deck, joined to the hull at the bow, and the prominent island and stack. The island is of cantilever design, similar to that of the Hayataka. It extends out at an angle from beneath the flight deck.



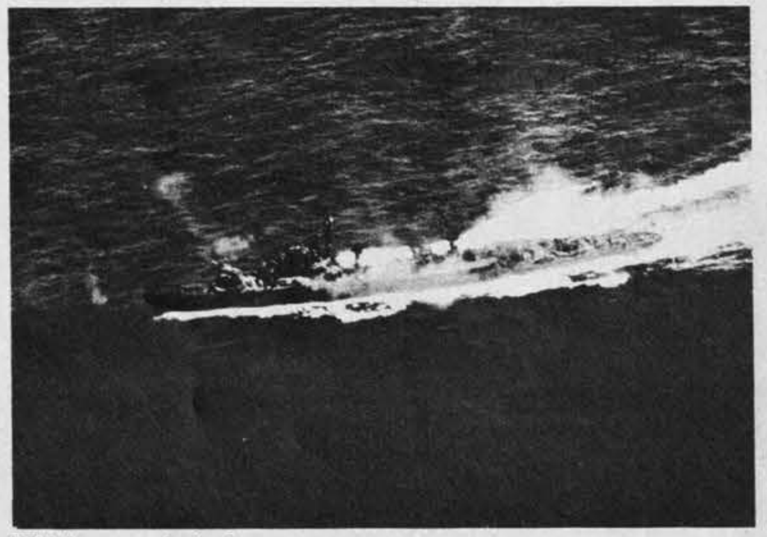
Takanami Class is an enlarged, improved version of the Asashio design (*right*). The bridge is lower and has an AA gun platform forward.



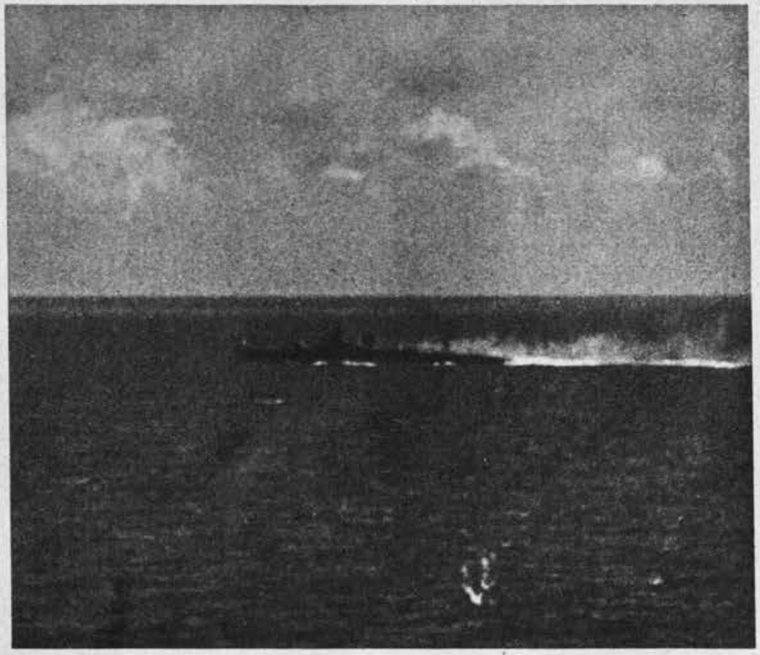
Modern two-stack DD's are represented in general by Asashio Class. Note broad forward stack, undulant deckline, Japanese clipper bow.



Aerial study of Chidori-Otori Class torpedo boat was made off Mindoro. Chidori-Otoris displace about 600 tons, have low bridge, single stack.

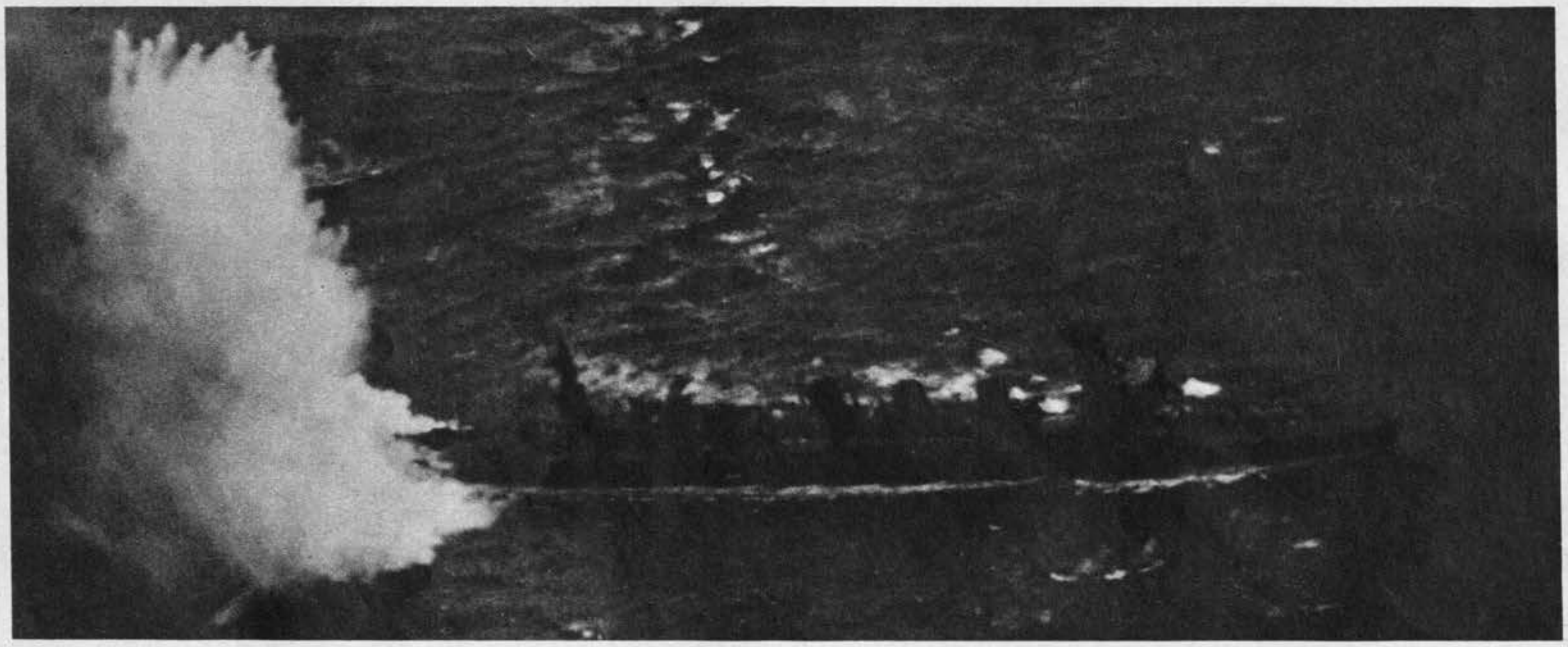


Widely spaced stacks are feature of 300-ft. Matsu Class. Stick mast is stepped on low, squat bridge. Note the unusual gun mount forward.

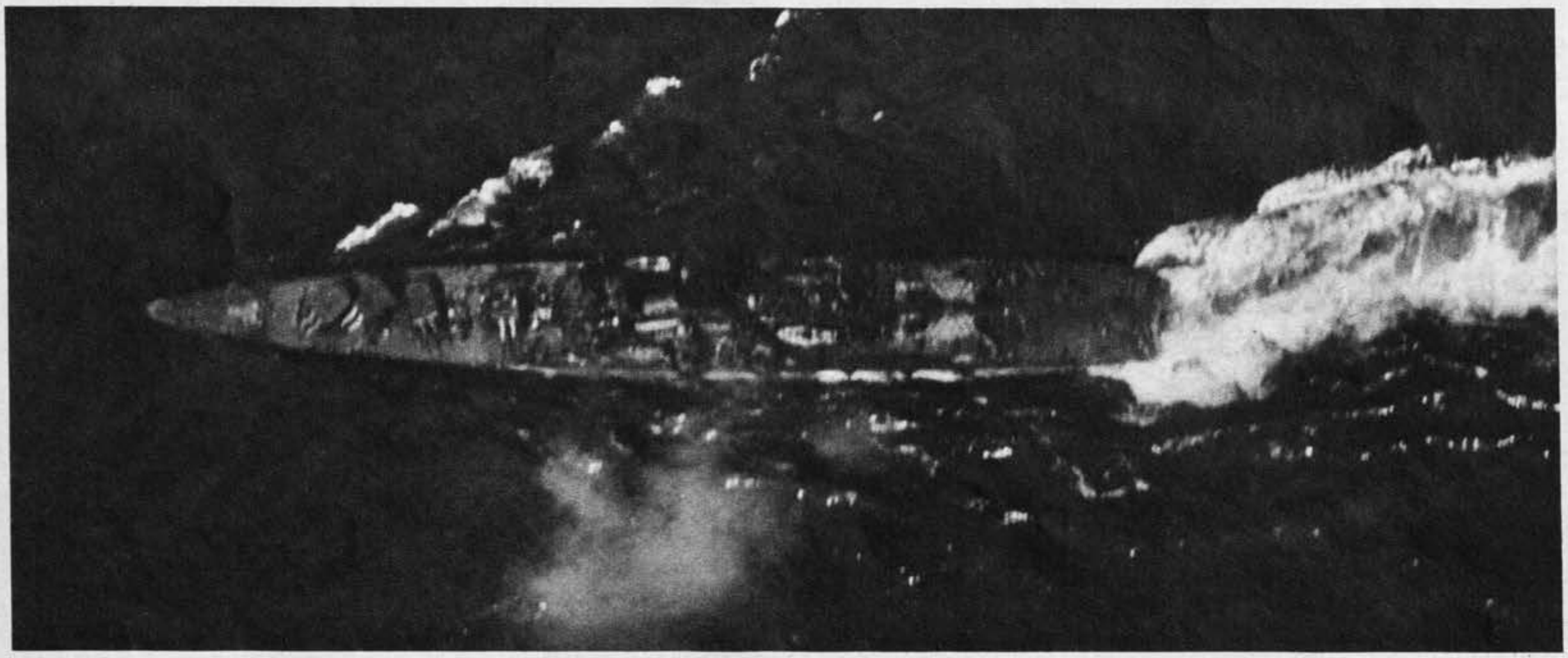


Burning Agano Class CL shows spacious superstructure plan in profile—slim tower bridge, slightly raked stack and sturdy mainmast aft.

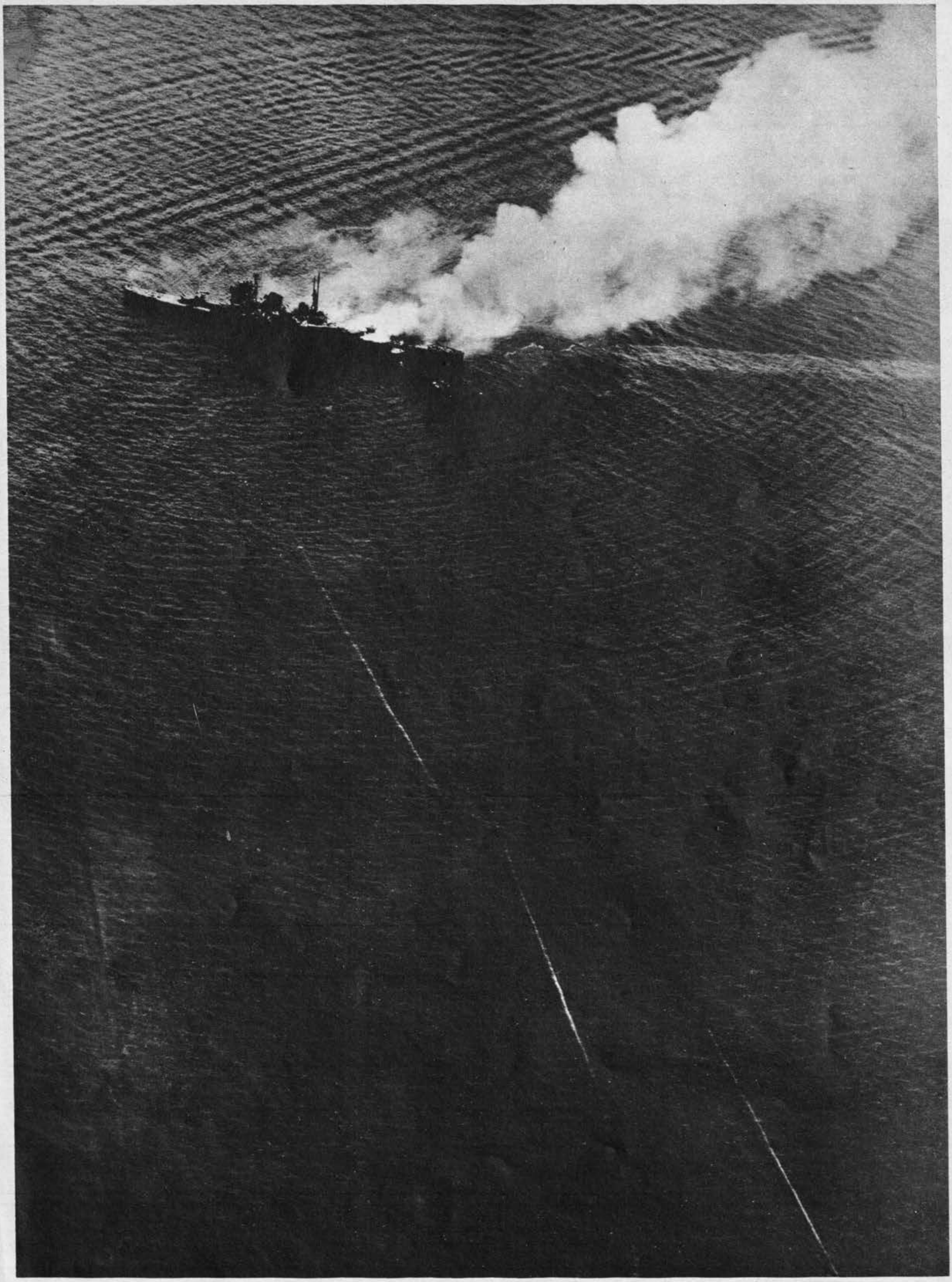
Cruiser Oyodo resembles Agano, has similar bridge and stack. Guns are in triple turrets forward, leaving space aft for A/C hangar and catapult.



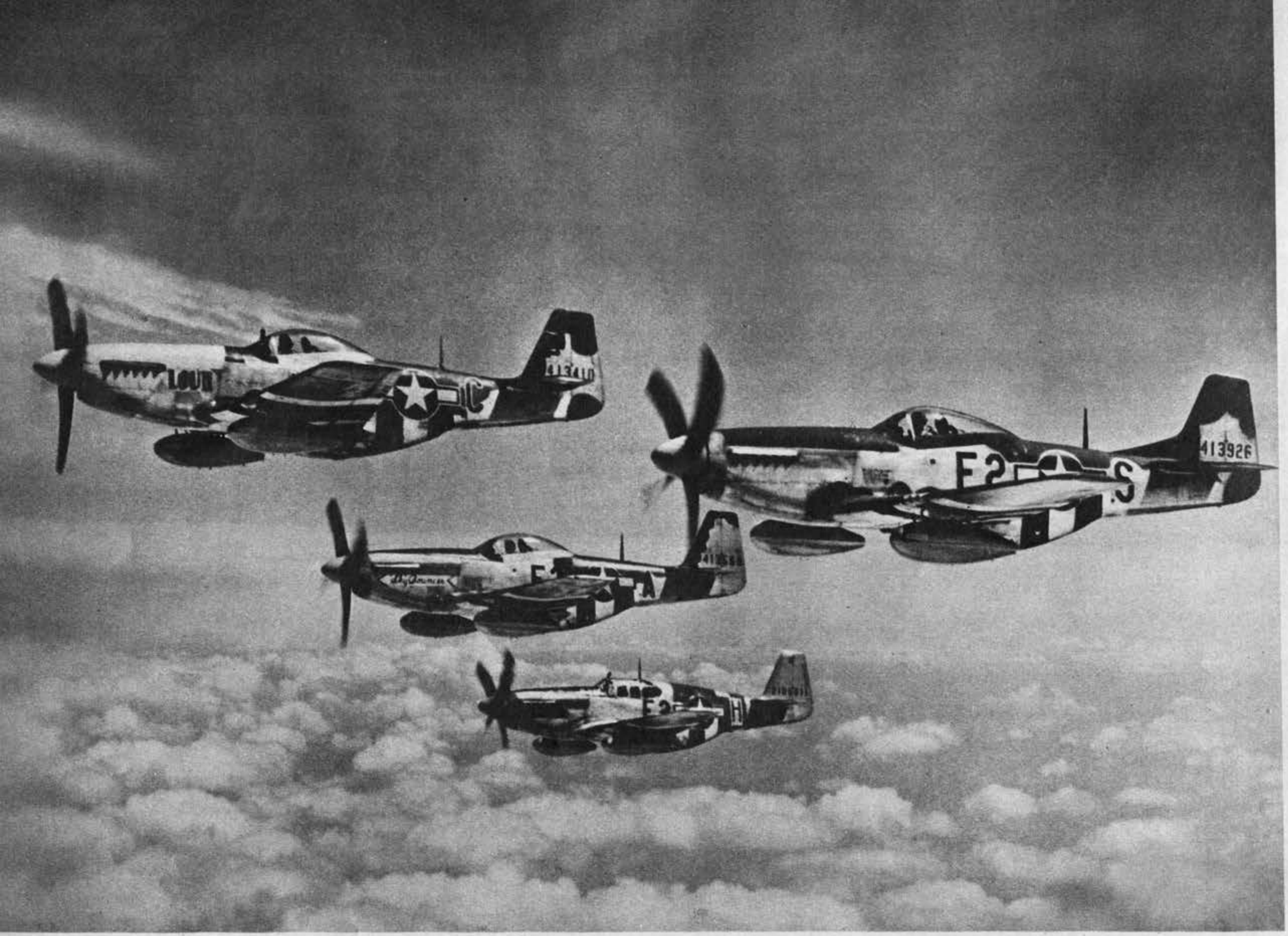
Near miss raises fountain of foam at the stern of Natori Class light cruiser. Kumas and Natoris have distinctive silhouette of three upright stacks, high, rectangular bridge, tripod mainmast typical of prewar Japanese CL's. Newer trend is to single-stacked types like Agano.



Stricken heavy cruiser trails boiling wake from its shattered stern. It can be easily identified as Tone Class from the concentration of guns in the four forward turrets and cleared aircraft deck aft. Tones carry six scout seaplanes. Big, heavily trunked stack shows clearly amidships.



Three torpedoes streak their way toward doomed Nachi Class CA when Manila Harbor failed to shelter the defeated Japanese fleet from U.S. air attack. Japanese heavy cruisers have jumble of superstructure elements amidships, including heavy bridge and bulging forward stack.



P-51's FREQUENTLY CARRY TANKS AND BOMBS UNDER WING BUT NEVER MOUNT BELLY APPENDAGES WHICH WOULD BLOCK PROMINENT AIRSCOOP

BOMBS, TANKS

Plane structure determines location of familiar appendages, offers a valuable recognition clue

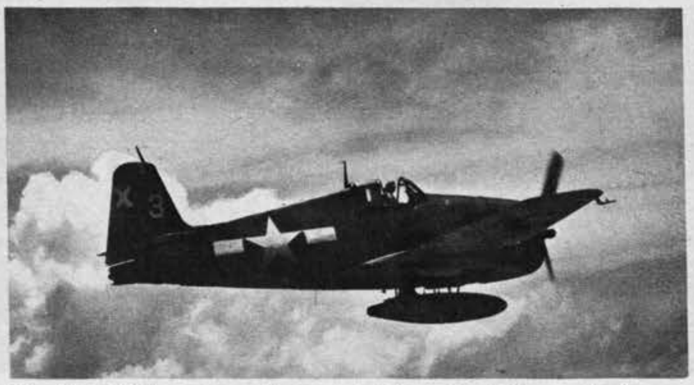
Following last month's general discussion of airplane appendages, the *Journal* is here presenting material on Allied practice in bomb and fuel-tank installation. As the appendages most frequently seen on today's fighters and light bombers, bombs and fuel tanks have achieved spectacular results. Mustangs equipped with drop tanks have made the trip from England to Warsaw and back. Dive-bombing Thunderbolts have shown great precision in destroying Nazi V-1 installations. When no bomb is available, a fuel tank has been used as a weapon. A Hellcat pilot dropped one on a Japanese destroyer's deck, then set it on fire with incendiary bullets.

Since the same plane may fly an escort mission one day and blast an armored column or a rocket-bomb platform the next, neither the size nor arrangement of bombs and fuel tanks is permanent. Wing bombs may be small anti-personnel missiles or big 1,000-pounders. U.S. fuel tanks range in size from 75 to 300 gallons.

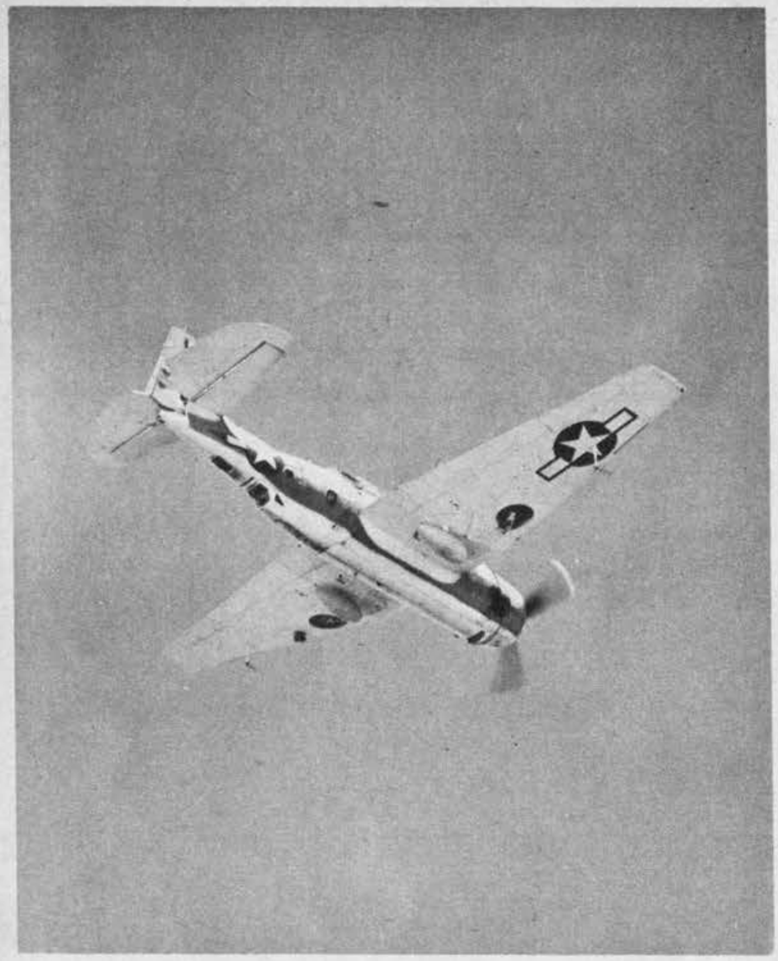
However, the location of the appendage is usually fixed by the structure of the plane which carries it. The P-51 (*above*) and Tony have belly airscoops, therefore never carry tanks or bombs beneath the fuselage. The Wildcat likewise has all of its appendages set under the wing. On the other hand, the F6F (*below*) is usually seen with a belly tank.

The Navy bombers at the top of the opposite page illustrate how the wing-rack location is governed by landing-gear design and the folding wing's hinge line. The Avenger's wing folds close to the root and the wheels retract outward; hence drop tanks are close to the fuselage. On the Helldiver, with the hinge line farther out and the landing gear retracting inward, the tanks are hung halfway between fuselage and wingtip. With twin-engine types the usual practice is to mount appendages outboard of the nacelles, but on the P-38 (*opposite*) inboard racks provide best weight distribution.

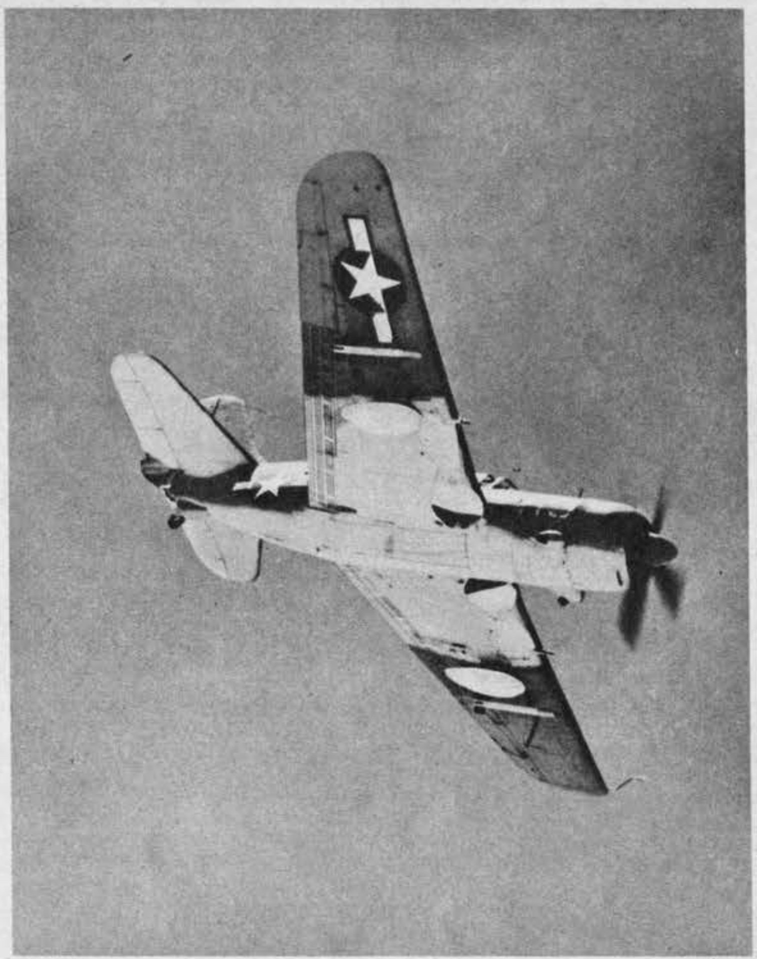
In those cases where different tank and bomb combinations are possible, various theaters have their characteristic patterns which can be learned. Navy planes often carry a tank on one wing only.



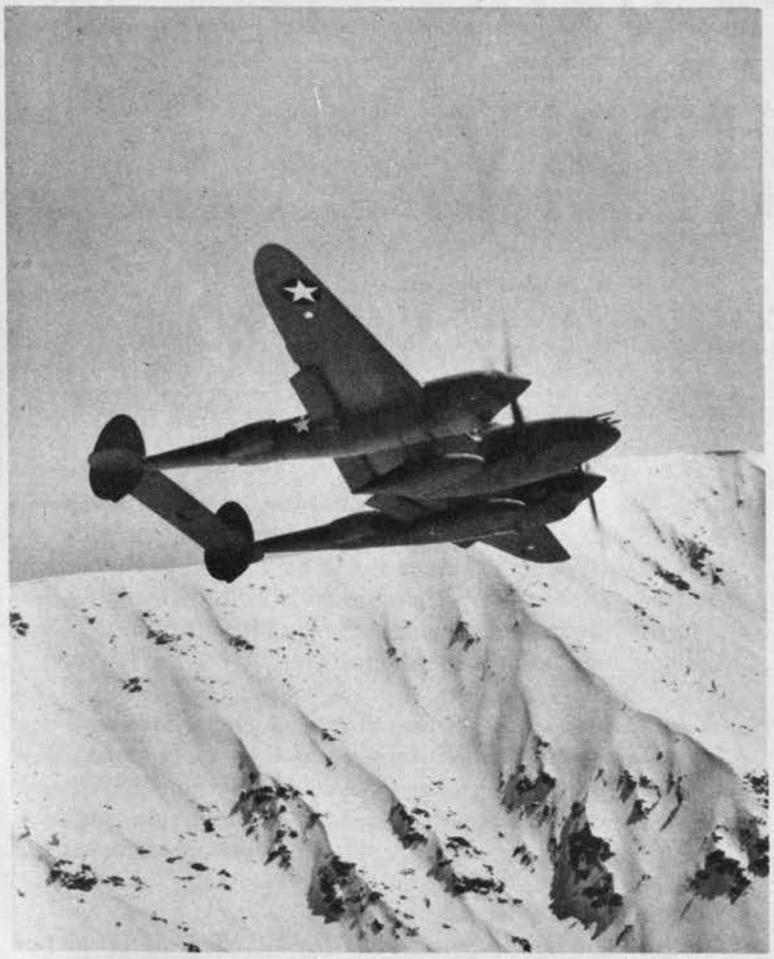
The F6F Hellcat is rarely seen without its belly tank. It may sometimes carry bombs or fuel tanks mounted under the wing.



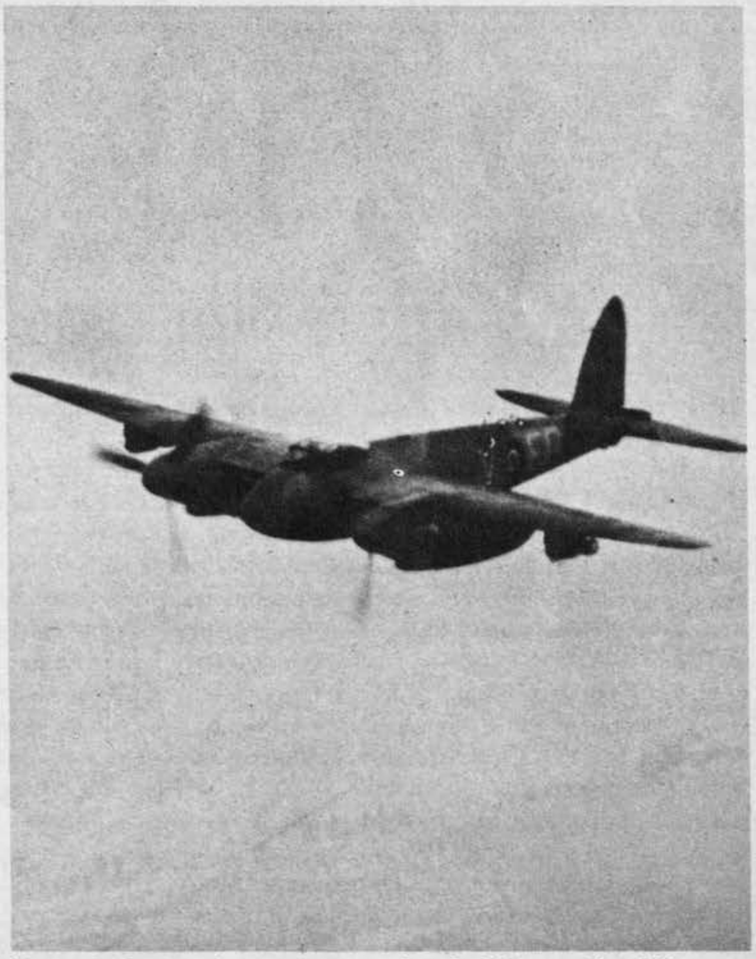
Avenger's wing tanks are set close to the fuselage, inboard of the landing gear which retracts outward. With its roomy bomb bay, the Avenger rarely carries bombs externally. Wing tanks are not used frequently but appear on both port and starboard when they are carried.



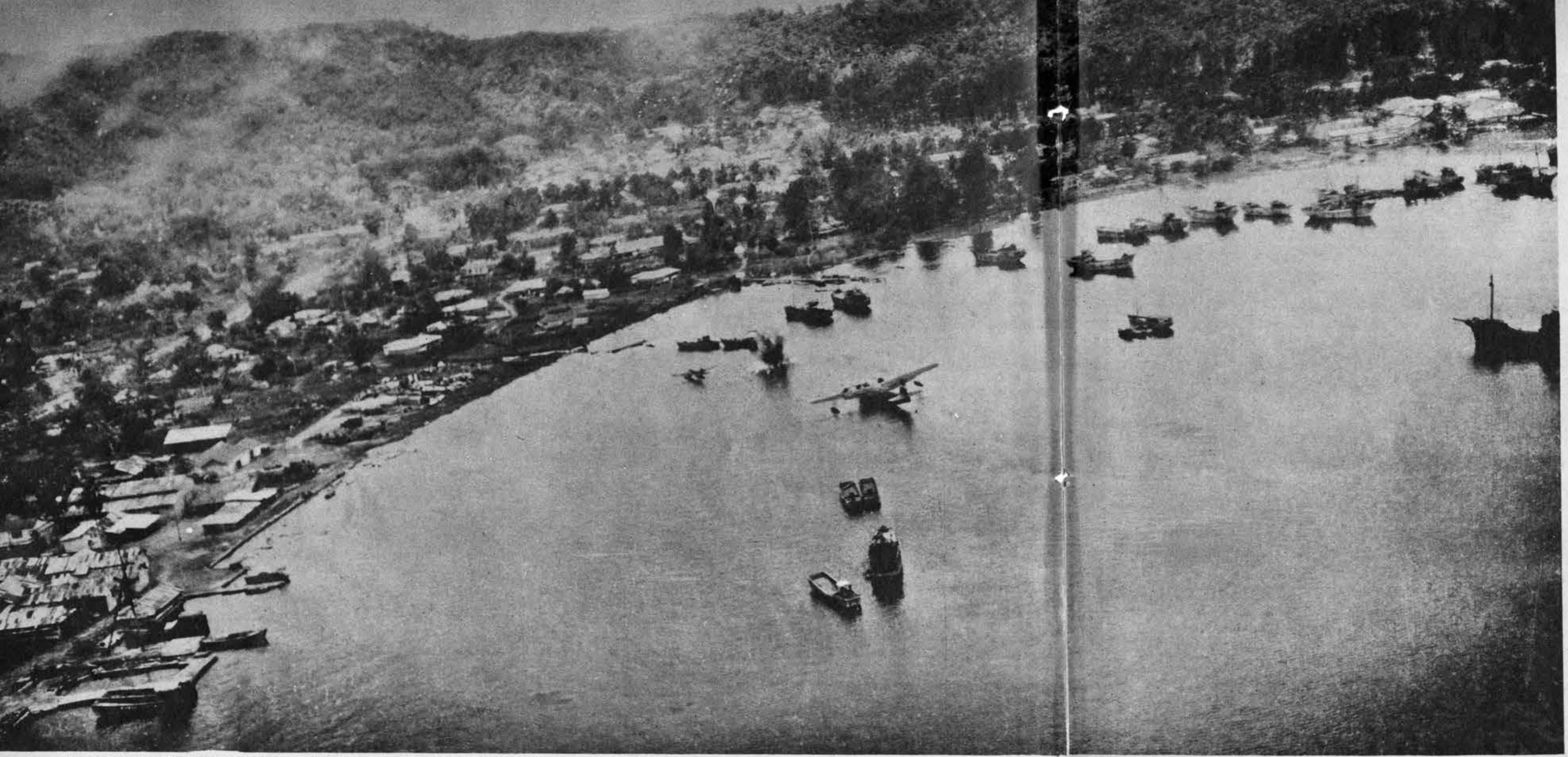
Helldiver's wing tanks hang halfway between fuselage and wingtip, outside of the landing gear which retracts inward. Depth charges or bombs may be carried in place of drop tanks on the SB2C-4 shown above. Characteristic Helldiver installation consists of two wing tanks.



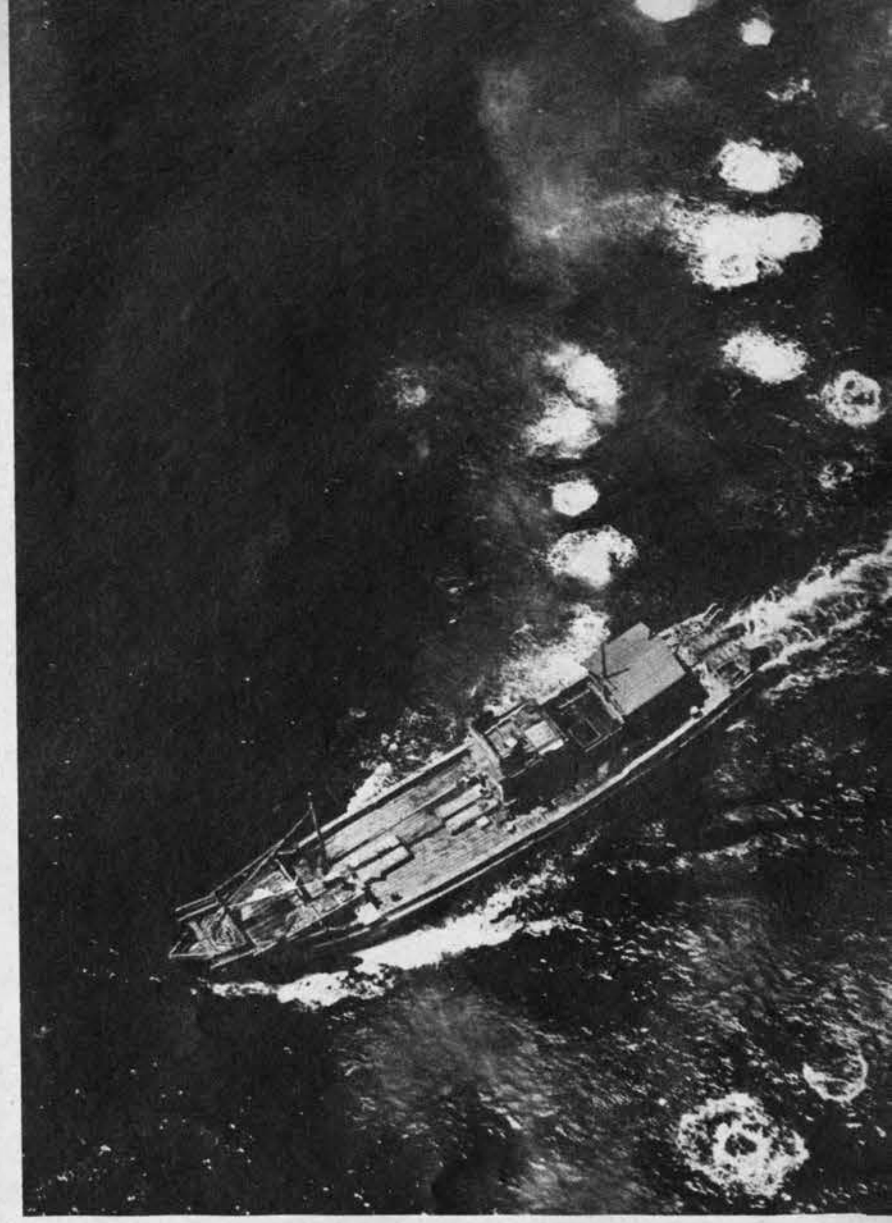
An unusual arrangement for twin-engine planes is used on the P-38 which carries both tanks and bombs inboard of nacelles. As many as three appendages (two 500-lb. bombs and a fuel tank) can hang from the wing on each side of the gondola with bombs flanking drop tank.



Mosquito's wing bombs hung outboard of the nacelles follow conventional pattern for twin-engine planes. The B-25 has a similar arrangement for fuel tanks used on 11th AAF raids on the Kurils. Fuel tanks outboard of the nacelles are also commonly seen on the PV-1.



SEA TRUCKS ALONG RABAUL WATER FRONT HAVE HIGH-BRIDGED STERNS, SAILING-SHIP BOWS. EXCEPT TYPE D LANDING CRAFT IN FOREGROUND. THE OTHER CRAFT ARE LUGGERS. NOTE JAKE AND EMILY (CENTER)



STRAFING PB4Y TOOK THIS SALON PORTRAIT OF A LUGGER OFF CELEBES

JAP SUPPLY

HUGE, VARIED FLEET OF SMALL CARGO VESSELS FEEDS THE ENEMY'S ISLAND BASES

Modern Japan has always been a vigorous maritime nation. Living on a poor, overcrowded island, the Japanese turned to the sea for a livelihood and became the Orient's chief merchants, carriers and fishermen. When imperial lust sent the Jap war fleet to sea, it had a large, efficient merchant fleet to back up its seapower.

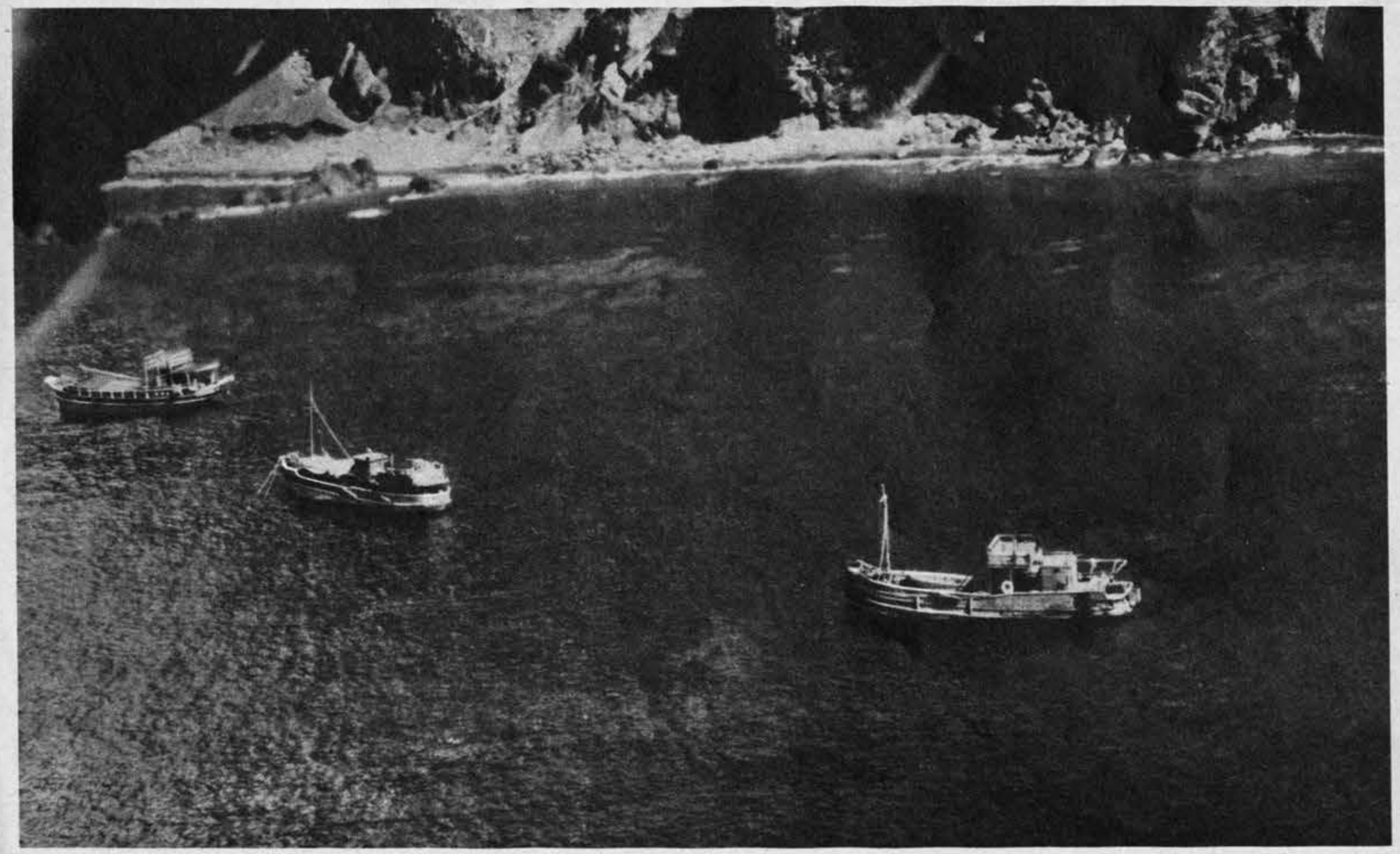
Today this foundation is seriously undermined. Japan's fleet of swift, rugged passenger and cargo vessels has been decimated. In this plight, she has turned to the smaller steel hulls—Sugar Charlie and Fox Tare Dog. Quick and economical to build, prewar fleets of these 300- to 2,300-ton ships are supplemented by an emergency building program including mass-production of Sugars. Most important are the Type E Sugar Charlie Sugars, 850-ton ore- and general cargo-carriers. About 250 of the E type ply the coastal routes, bringing raw materials to Japan and returning processed supplies. Steel-poor Japan also employs the 70- to 150-ton wooden Sugar Dog, which is the smallest stacked cargo type.

Unable to equip inter-island distribution routes with these smaller standard designs, the Japs have fallen back on the grass roots of their maritime strength—wooden vessels and native or fishermen crews. The prewar fleet of coasters, trawlers, junks and island schooners has been pressed into service to keep both the Jap economy and war machine alive. Moreover, in 1943 Tokyo announced a building program aiming at 1,000,000 tons of reinforcements.

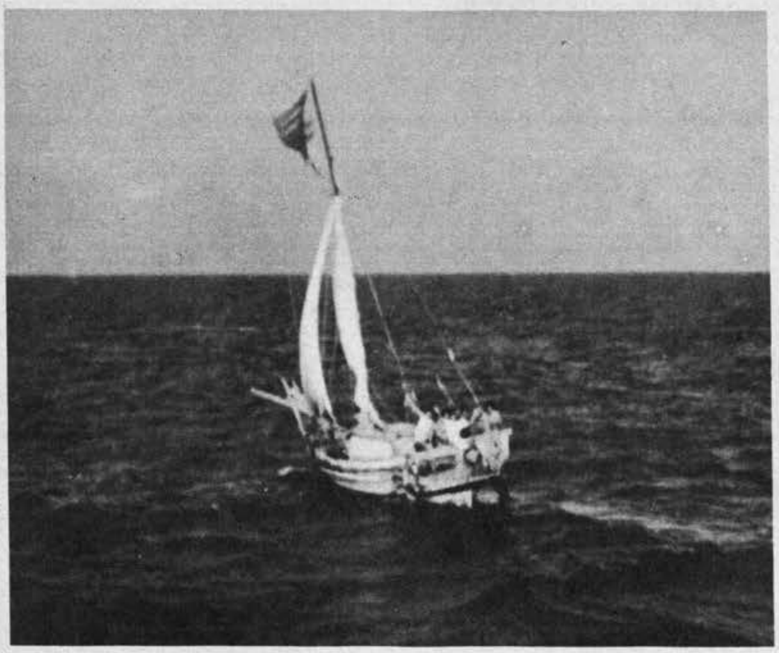
Chief advantages of this program are that shipyards can be set up wherever timber is available, and craft turned out by unskilled labor. Two types are built—the 100- to 300-ton stackless sea truck, with a high poop and forecastle, and the lugger which resembles small fishing boats and is less than 100 tons. Both can be manned by islanders or fishermen with little training. Luggers and sea trucks are chiefly engaged in military transport, while the island craft carry local produce.

These dowdy vessels are of prime importance. In the Burma area they constitute 60 per cent of the shipping, and garrisons of up to 14,000 men have been supplied by these types alone. Small and shallow in draft, they slink close inshore among island reefs and are easily camouflaged to blend into the jungle shoreline. The wooden types, however, are slow and have only short endurance. Once spotted, they are vulnerable to strafing since they are wooden and have little AA protection.

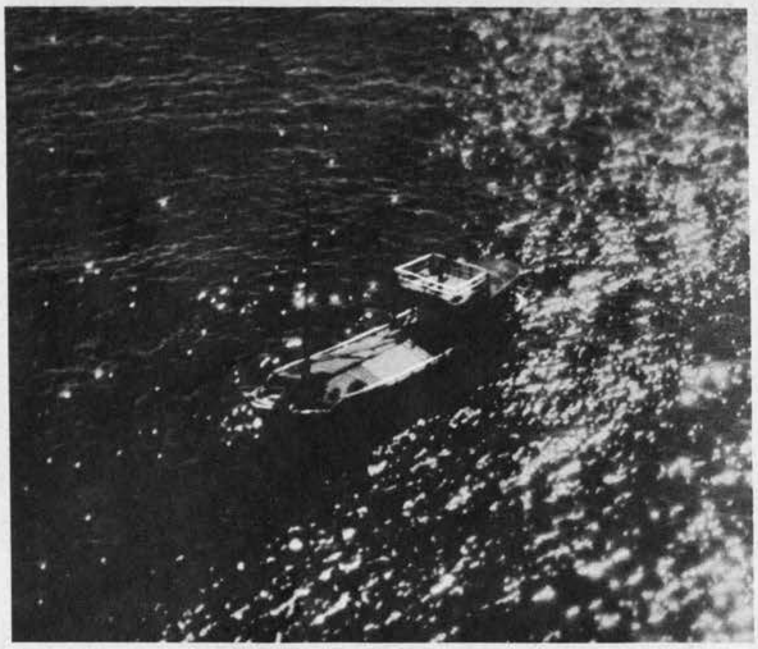
On these and following pages the *Journal* offers a brief picture survey of all the main groups mentioned above. Although they have an unimpressive appearance, they are the backbone of enemy supply. The more Sugar Charlies, sea trucks and luggers we send to the bottom, the nearer we bring Japan to suffocation and defeat.



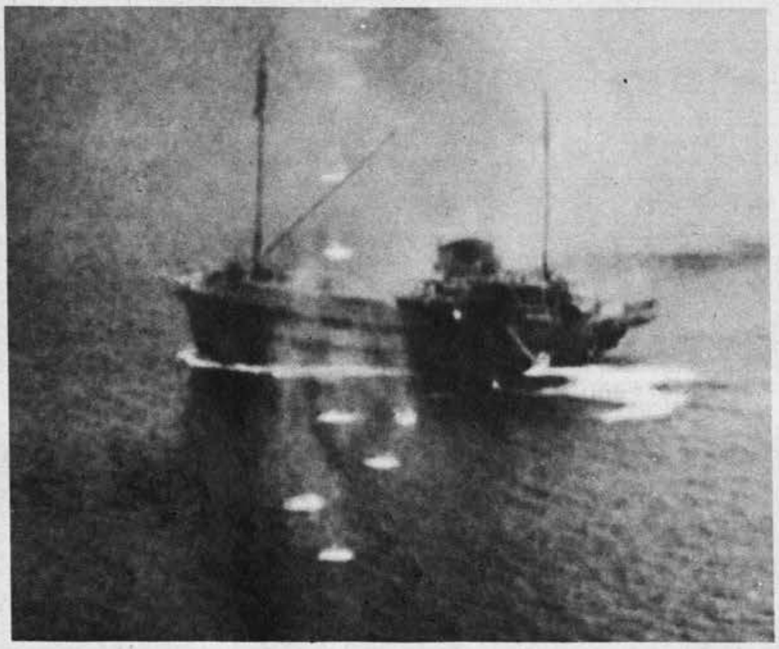
Three small Jap craft are moored close inshore by the volcanic cliffs of Iwo Jima. Vessel at left has upswept Oriental hull shape and flimsy deckhouse typical of most enemy luggers. Other two are blunt-bowed, sturdy in appearance, and probably are converted trawlers or luggers.



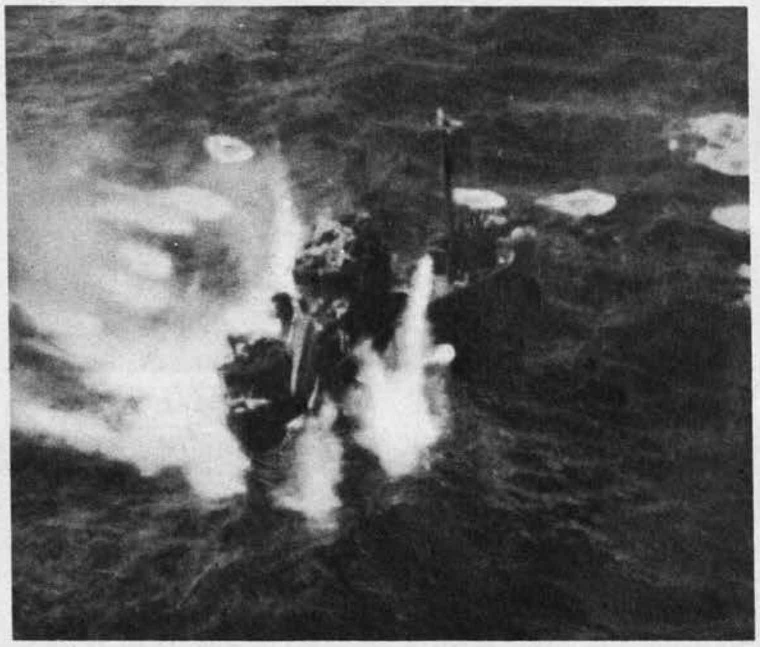
Battered junk is native-manned, judging by the crew's appearance. It has tapering, boxy stern of the junk, probably carries island produce.



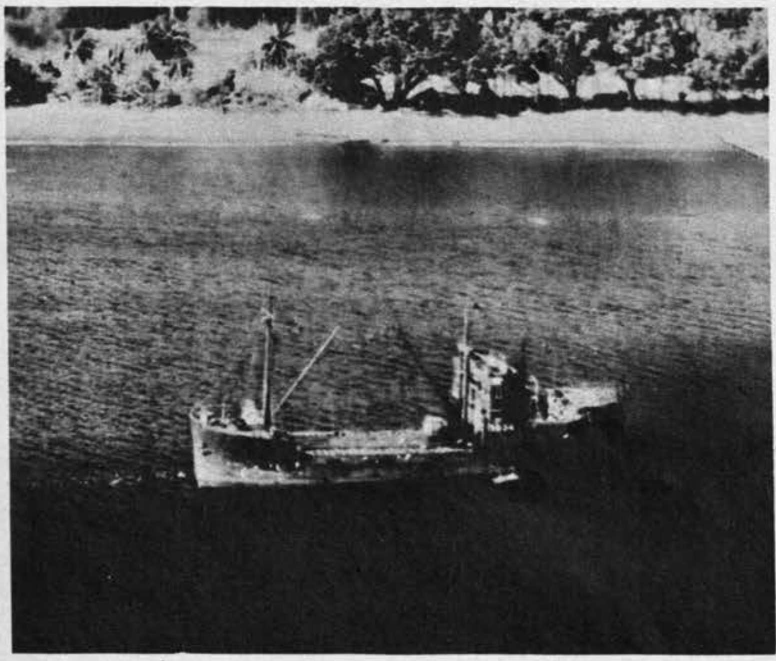
Large lugger, caught off Iwo Jima, has prominent square bridge and roofed-over stern. Jap luggers vary widely in superstructure design.



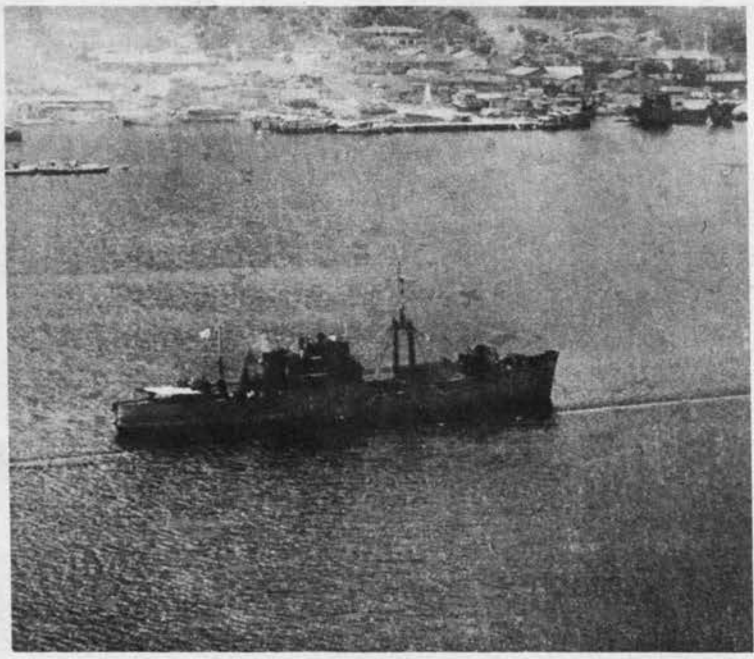
Chunky sea truck cannot escape combined bombing and strafing. High freeboard and superstructure on the poop stamp it as a Sugar type.



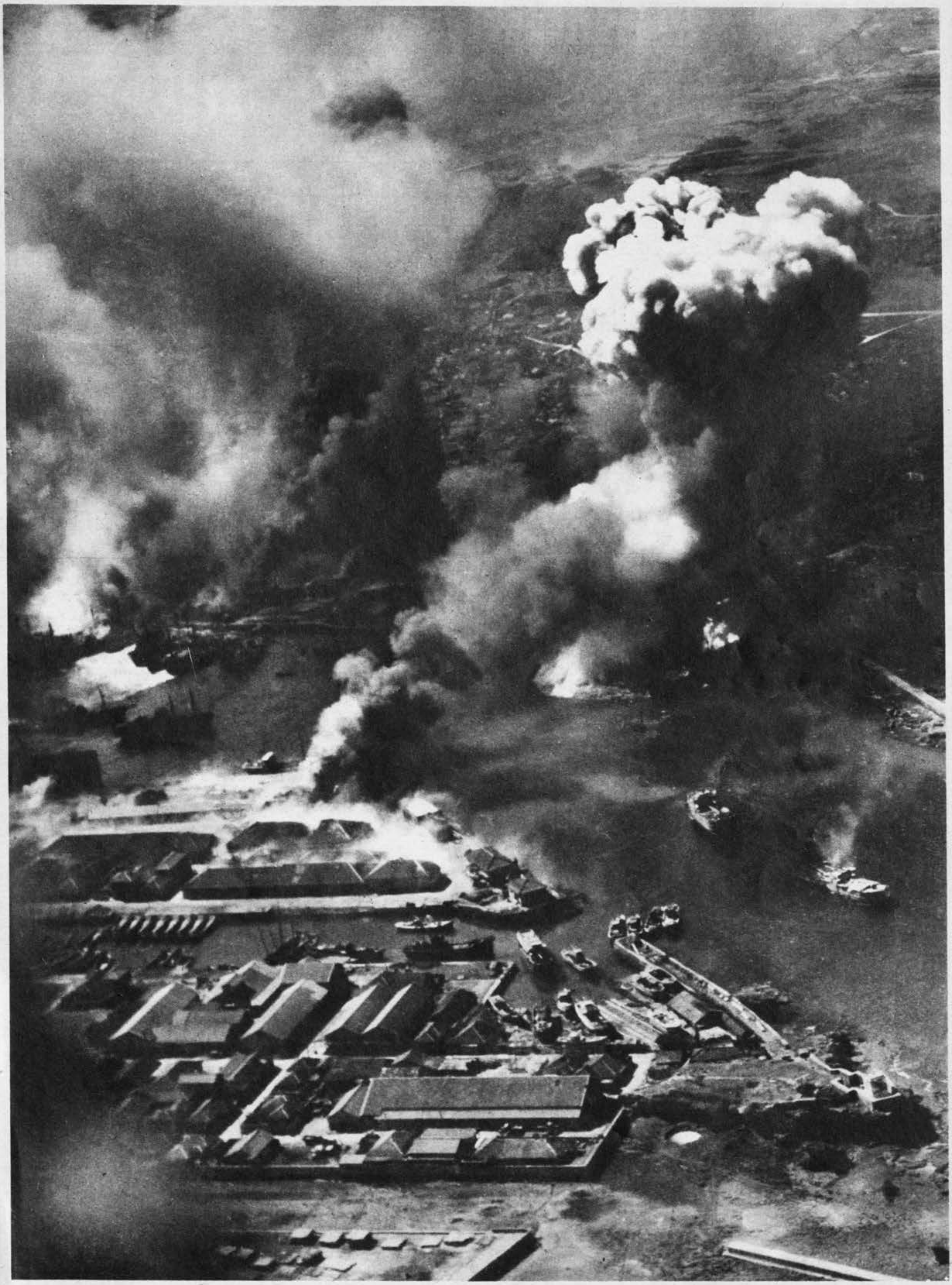
Strafing smothers Jap Sugar Dog, already broken amidships by bombing. Stack and bridge aft, single hatch and mast make it Sugar Dog.



The two masts and a two-hatch space between the forecastle and the bridge indicate that this engines-aft freighter is a Sugar Charlie Sugar.



Simpson Harbor at Rabaul shelters modern oiler of Hayazaki Class. Since superstructure is aft of amidships, airmen report Fox Tare Dog.



Carrier-based strike at Okinawa spreads fire and destruction among welter of Jap shipping. Moored Sugar types and sea trucks can be picked out (*left center*) while two Sugar Dogs are out in the channel. A flotilla of luggers is collected around the repair dock at lower right.

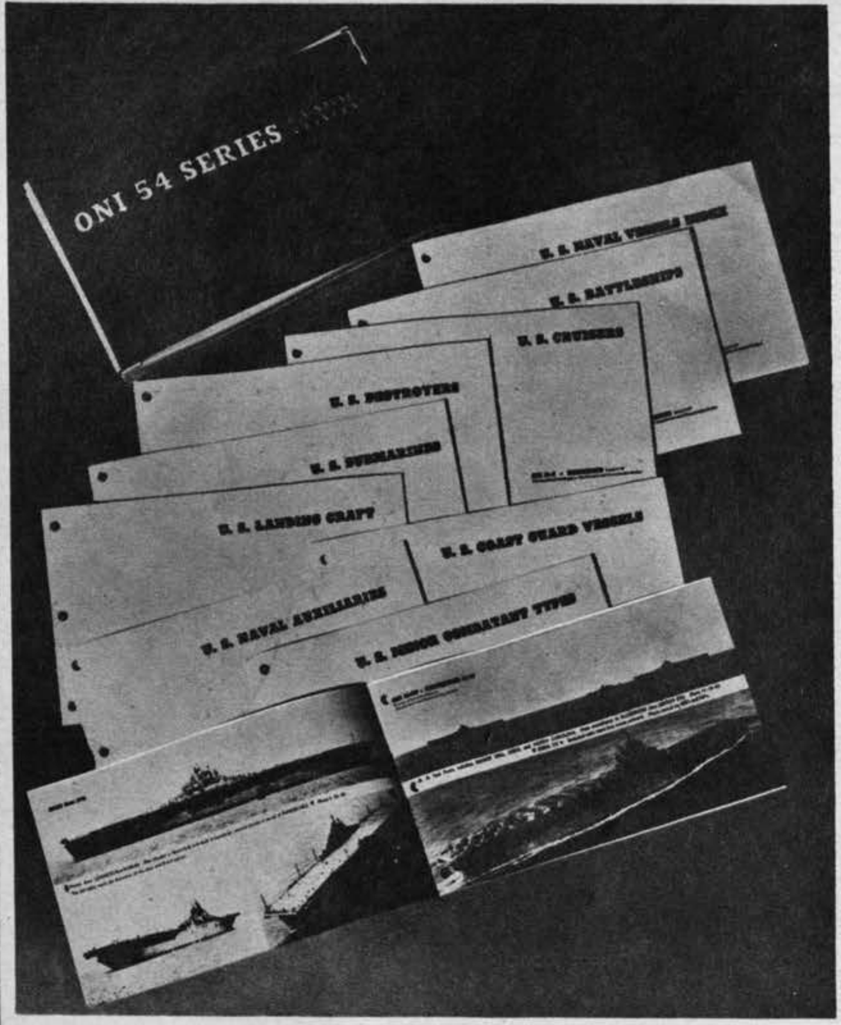
ONI AIDS TO RECOGNITION

Most of the pictures and information supplied to Navy recognition instructors and students comes directly or indirectly from the Office of Naval Intelligence (ONI). As new types of ships and planes become operational and old types disappear, close contact with intelligence sources must be maintained to keep the recognition program as comprehensive and streamlined as possible. Since all pertinent reports and pictures are channeled through ONI, this agency is admirably equipped to serve recognition in this respect.

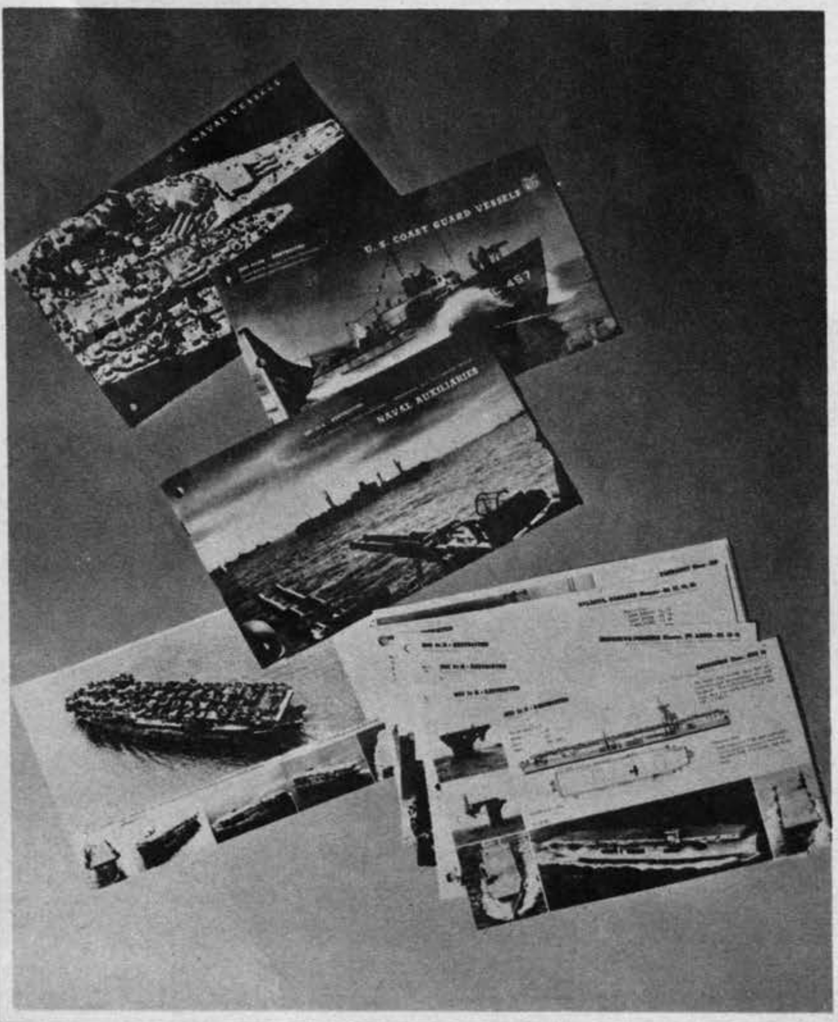
ONI not only passes digested information along to other activities, but issues it directly to the field and training centers. Its publications include pictorial and technical manuals, charts and posters.

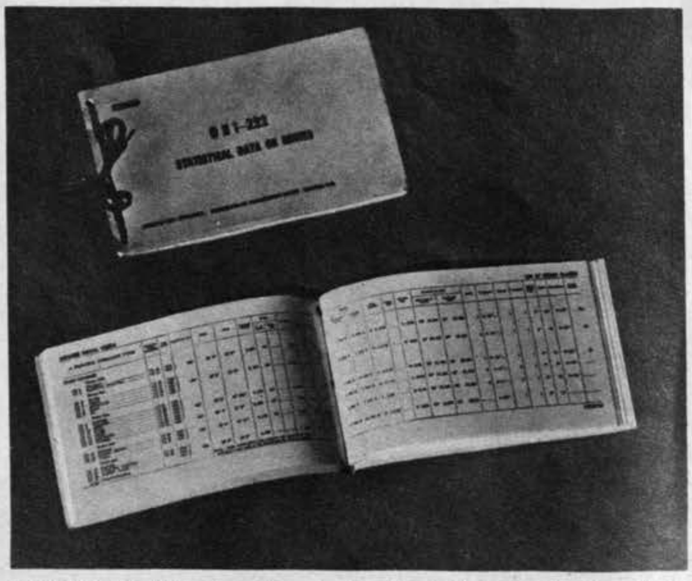
The material furnished by ONI is not designed especially for recognition, but is intended for many phases of naval activity. Consequently these manuals and charts should be used for reference, not primarily as recognition textbooks. All ships and activities are supplied with the basic ONI reference manuals and the officers in charge are urged not to keep the literature hidden. It should be made easily available for wide use.

Certain vessels and programs may not have received the most recent or appropriate material and may not be aware of its existence. Small pamphlets listing Confidential and Restricted publications have been issued. The publications themselves may be obtained from District Intelligence Offices, Training Aids Libraries of the Bureau of Personnel, and Intelligence Centers in the various theaters of war. If access to these sources is not easy, requests may be made to ONI, Navy Department, Publications and Dissemination Branch, Room 3825, Washington 25, D.C.

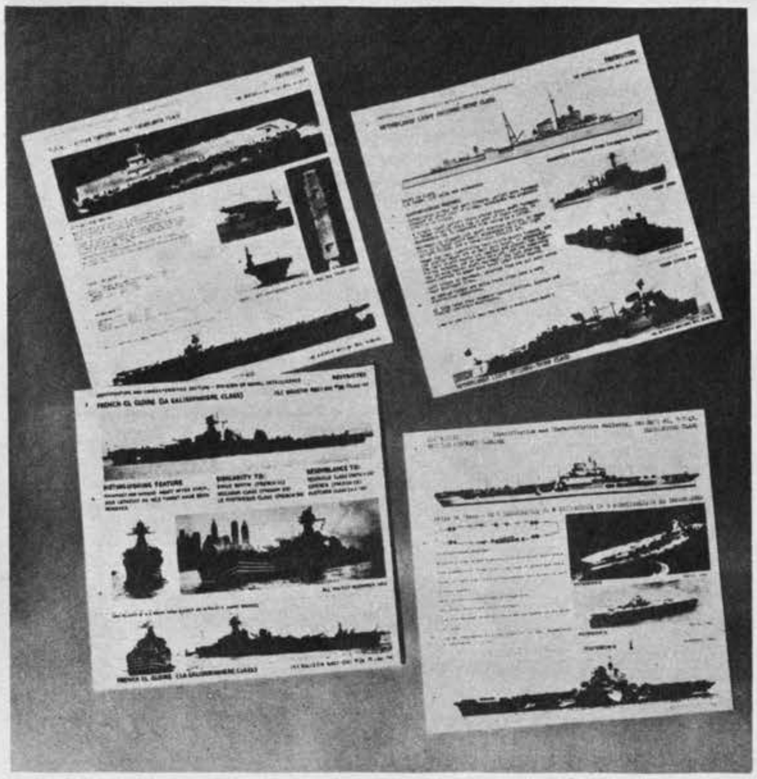


Complete coverage of U. S. naval vessels is provided by the ONI 54 series. The different types are covered in separate folders, all incorporated in one binder. The beam and plan drawings of each class are shown with a selection of photographs from all angles. ONI 41–42 does the same for the Jap fleet.

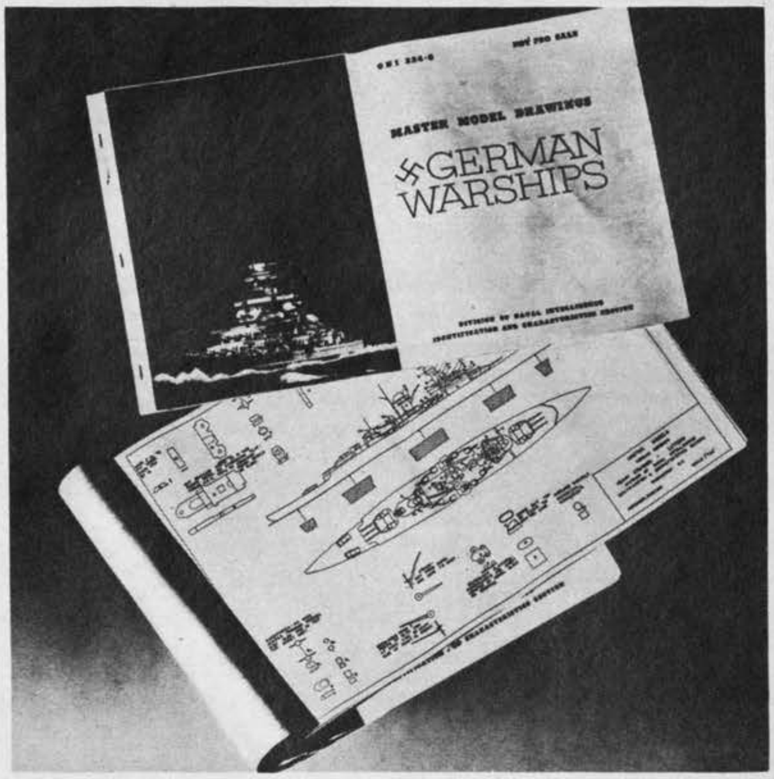




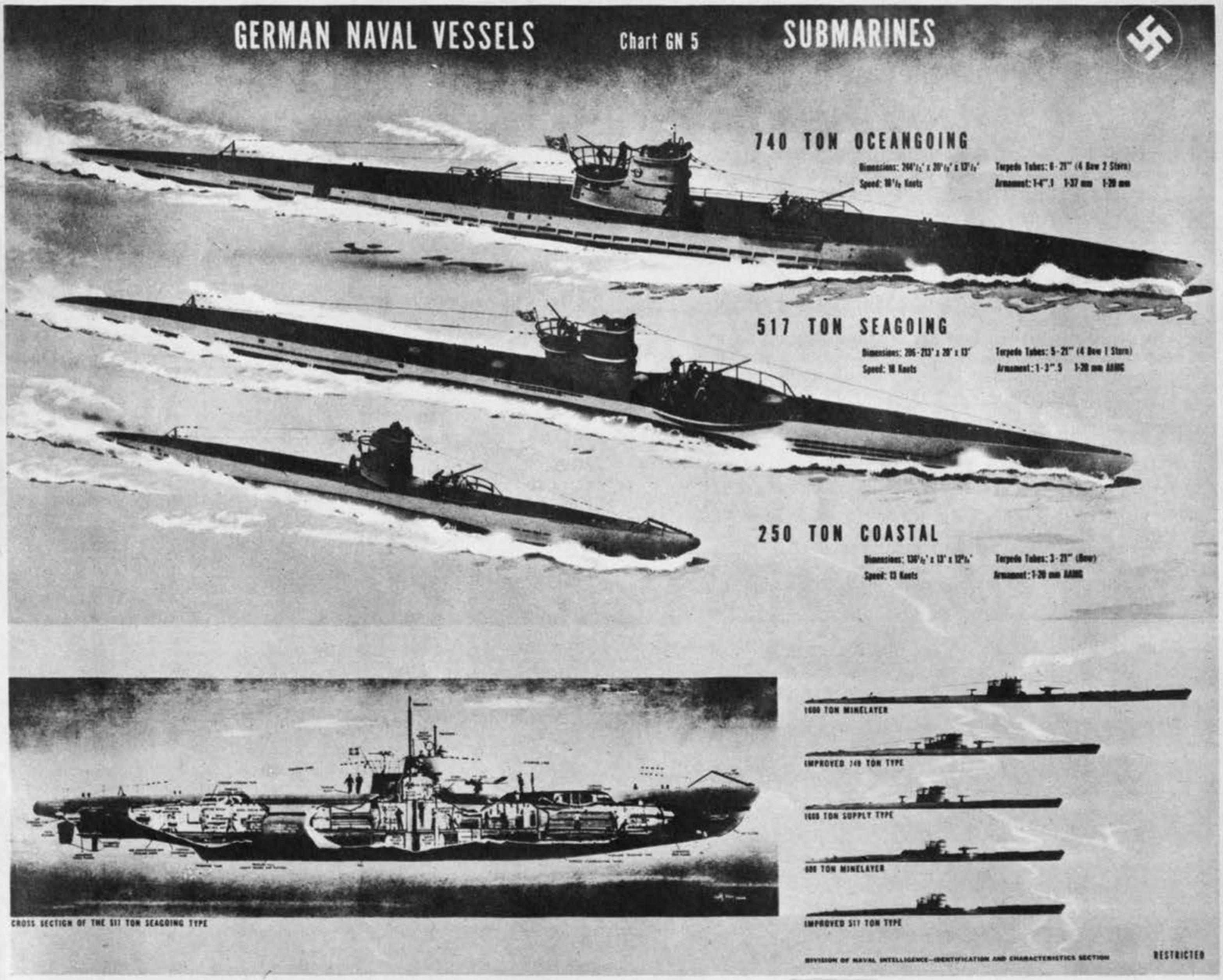
Statistical tables do not make the best photographs, but their technical data aids in understanding of pictures and reports.



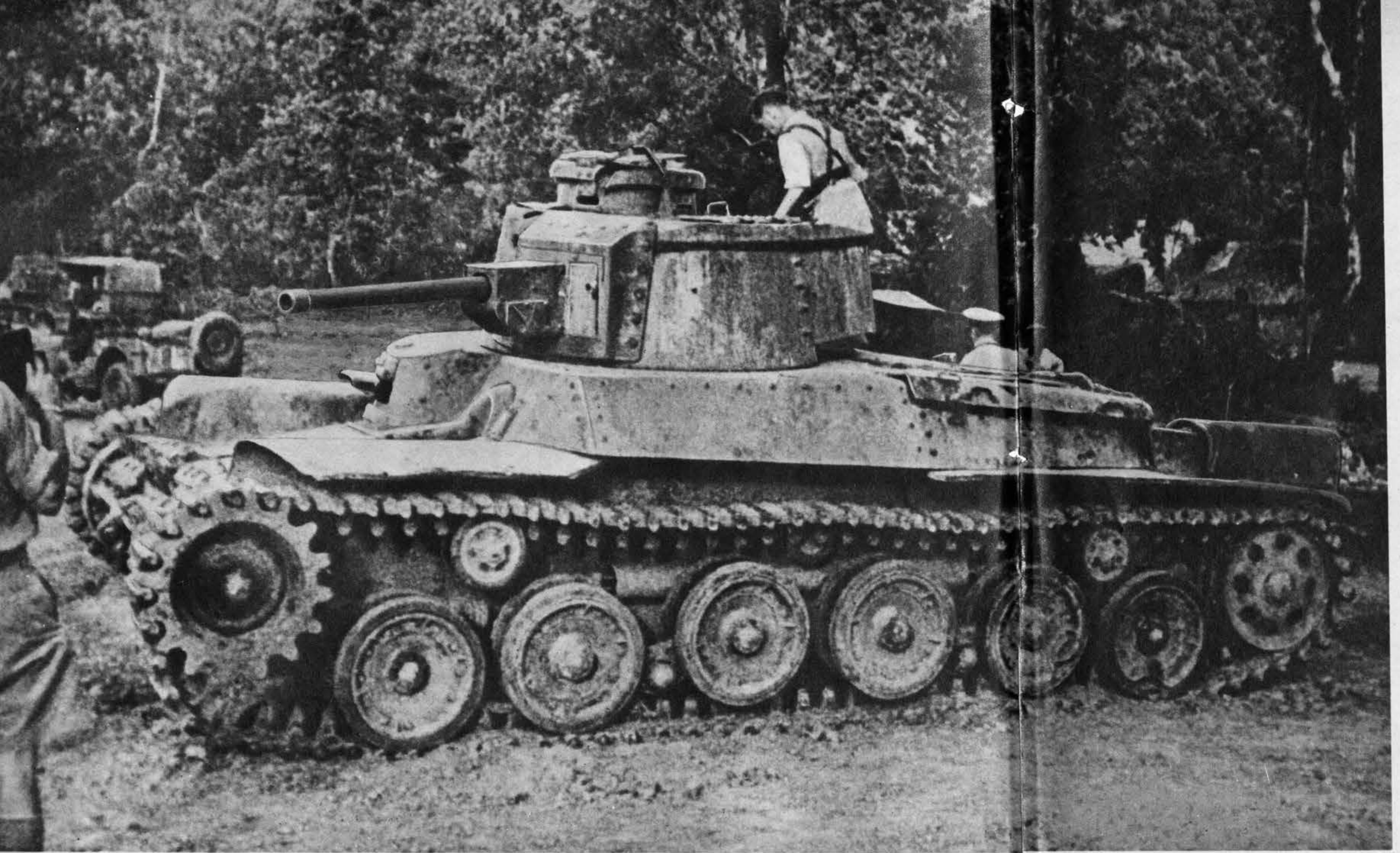
Bulletins for pilots' chart boards are one-page summaries of important ship classes. They are eight inches square, printed on one side.



Master Drawings for the ONI model series serve as a detailed guide for model construction, show plan and beam views of ships included.


GERMAN NAVAL VESSELS
Chart GN 5
SUBMARINES
740 TON OCEANGOING
Dimensions: 244½' x 20⅓' x 13⅓'
Speed: 18½ Knots
Torpedo Tubes: 6 - 21" (4 Bow 2 Stern)
Armament: 1-4".1 1-37 mm 1-20 mm
517 TON SEAGOING
Dimensions: 206 - 213' x 20' x 13'
Speed: 18 Knots
Torpedo Tubes: 5 - 21" (4 Bow 1 Stern)
Armament: 1 - 3".5 1-20 mm AAMG
250 TON COASTAL
Dimensions: 136½' x 13' x 12⅓'
Speed: 13 Knots
Torpedo Tubes: 3 - 21" (Bow)
Armament: 1-20 mm AAMG
CROSS SECTION OF THE 517 TON SEAGOING TYPE
1600 TON MINELAYER
IMPROVED 740 TON TYPE
1600 TON SUPPLY TYPE
600 TON MINELAYER
IMPROVED 517 TON TYPE
DIVISION OF NAVAL INTELLIGENCE—IDENTIFICATION AND CHARACTERISTICS SECTION
RESTRICTED

Three-dimensional summary of German submarines is typical of ONI charts and posters. These are large, and suitable for walls, classrooms and bulletin boards. Groups such as "Japanese Battleships," "U.S. Naval Aircraft," etc. are summarized in renderings or silhouettes.



BRITISH EXAMINE THE 47-MM. GUN VERSION OF MODEL 2597 MEDIUM TANK NEAR IMPHAL. THE HIGH-VELOCITY WEAPON REQUIRES A HEAVIER MANTLET AND LONGER TURRET THAN THE OLDER 57 (LEFT, BELOW)

JAPAN'S TANKS

CURRENT MODELS ARE LIGHT AND POORLY ARMED

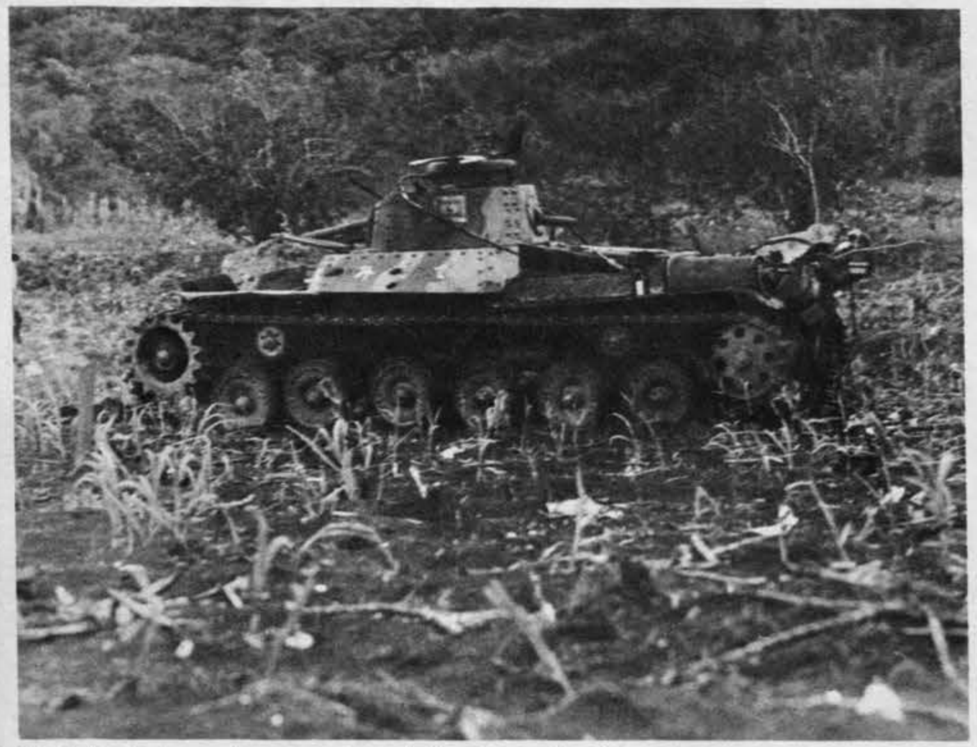
In 13 years of almost continual warfare Japan has failed to show armored equipment which even approaches German or Allied standards. There have been no confirmed reports of Japanese tank destroyers or self-propelled assault guns. The tanks encountered up to now are small, thinly armored and weak in firepower.

The largest tank used in quantity by the Japanese, the Model 2597 medium, weighs only 15 tons, four less than the new U. S. light tank, M-24. It carries either a low-velocity 57 or a newer, high-velocity 47-mm. weapon; the M-24 carries a 75-mm. cannon. Armor on the 2597 is nowhere over an inch thick. Not only lightness of the armor but absence of welded construction as well make the Japanese tank quite vulnerable. Its hull and turret plates are assembled almost entirely by bolts and rivets.

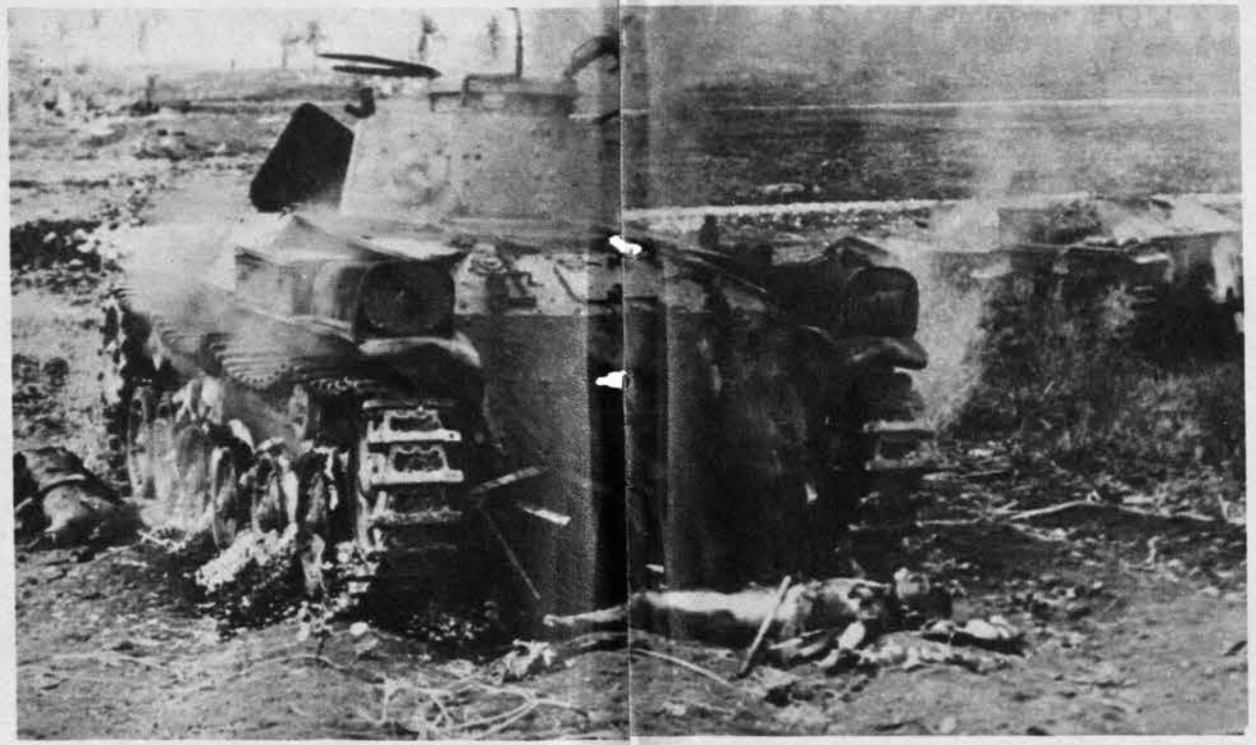
But just as the Japanese held their best airplanes in reserve before December 1941, they may now just as smartly be saving improved armored vehicles for mass action on good tank terrain. It must be remembered that except for an amphibious light tank and a modification on the 2597 medium, no new Japanese armor has apparently been designed since 1938. Yet the Japanese have almost certainly been obtaining German blueprints and have opposed U. S. and British armor in the field. It can therefore be assumed that they have the designs for bigger, more powerful tanks. Moreover, there is no reason to believe that their industry is incapable of producing them.

Up to now the Japanese have not been copying western designs even though they had no tank industry of their own before 1929. This is shown by the distinctive medium-tank models pictured on these pages. Representative of the early designs is the Model 2594 (*directly below*) with its blocky turret set all the way forward, its nine small bogie wheels and its armored skirting which covers most of the running gear.

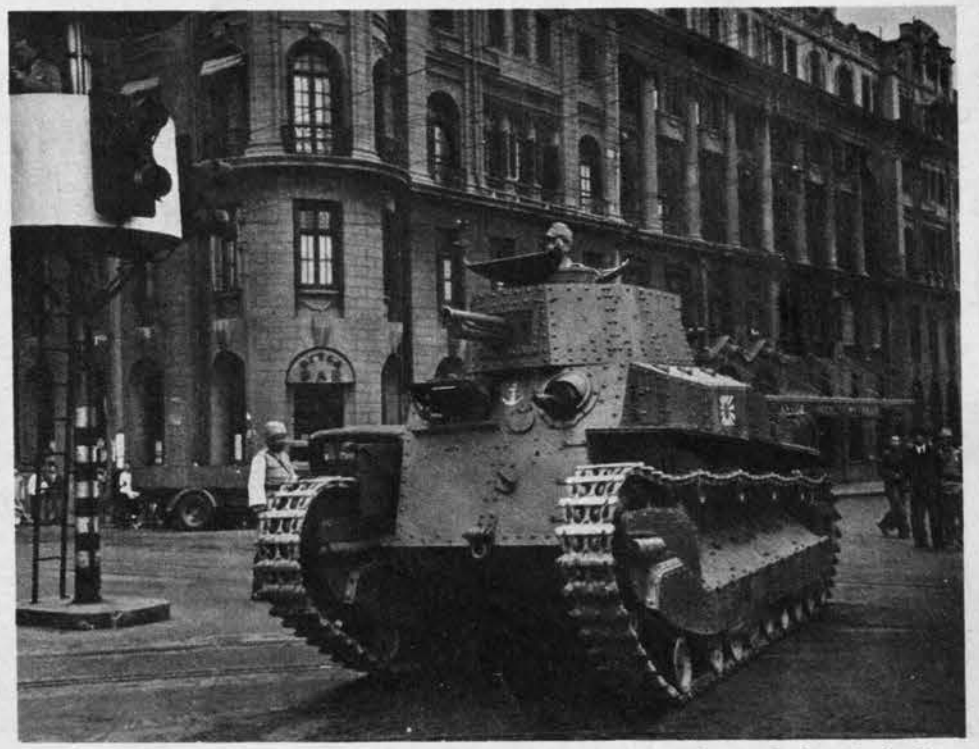
More recent medium tanks and by far the most frequently seen are two variations of Model 2597. They have the same chassis characterized by a flat, low hull and a front-sprocket drive with six evenly spaced bogie wheels. Older version mounts a 57-mm. cannon with a visible recoil cylinder in a round turret. Newer model, encountered on Saipan and near Imphal in India, carries a high-velocity 47-mm. weapon in a longer turret with a more prominent flat plate at the rear.



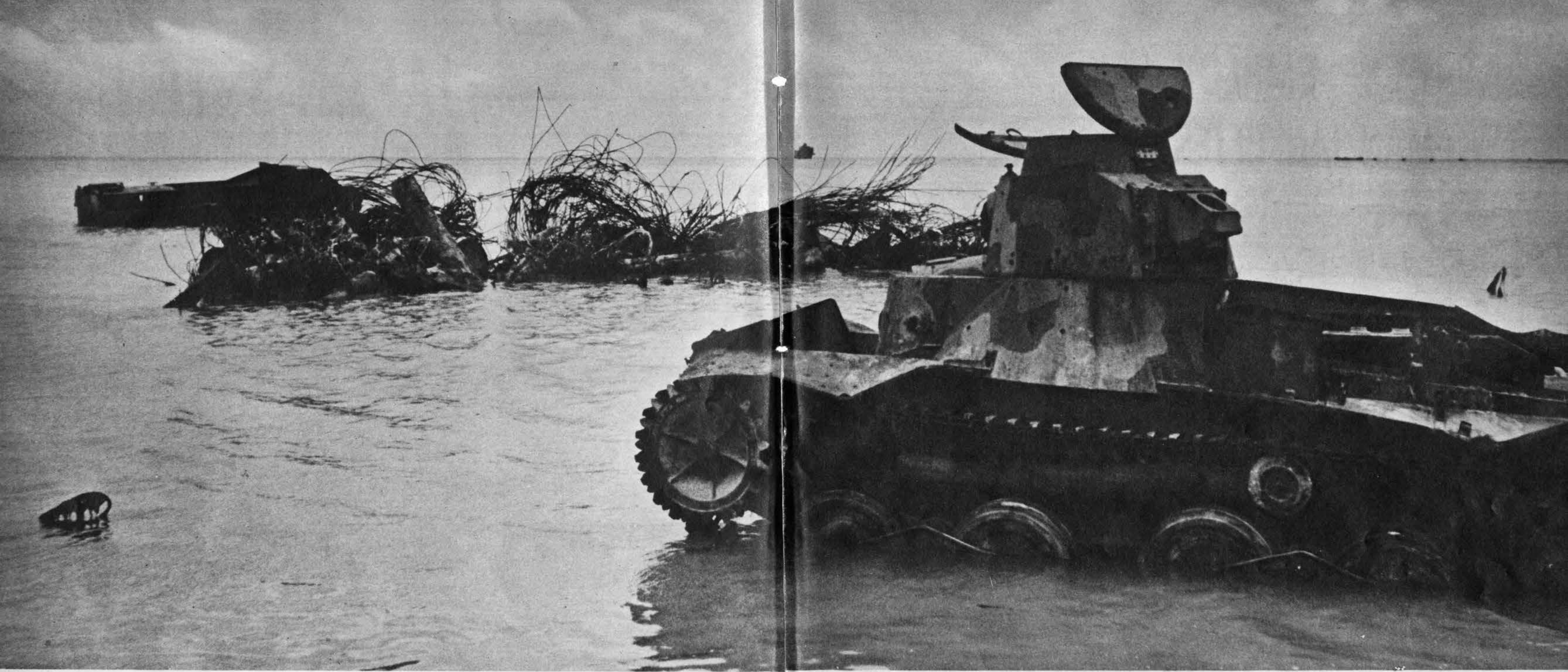
Model 2597's running gear has six bogie wheels. Four central ones are mounted in pairs, while end wheels hang independently. Note gun's recoil cylinder in front, to left.



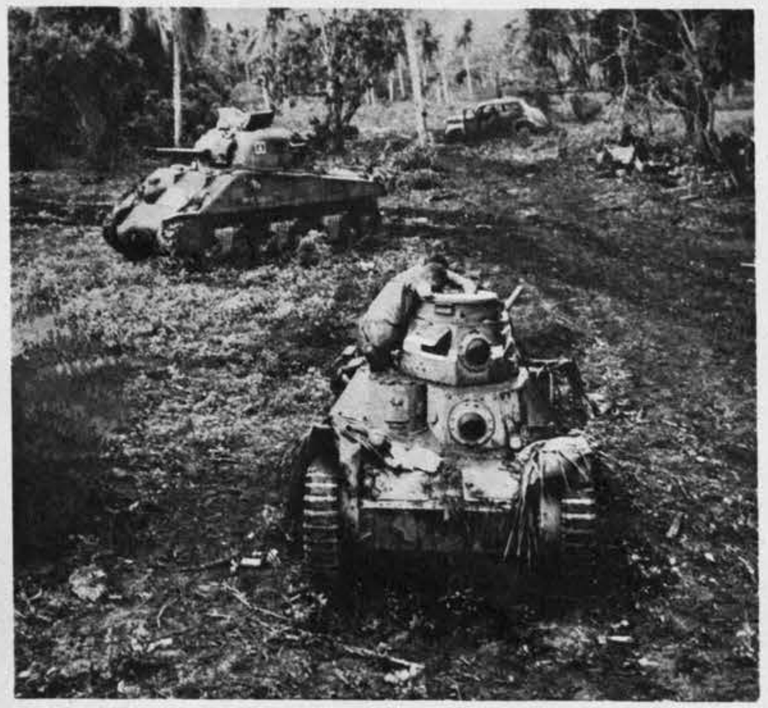
Rear view of shattered 2597 medium shows the off-center position of turret which mounts MG at the rear. Only two return rollers are visible, but a third, supporting the track's inside half, is set between them.



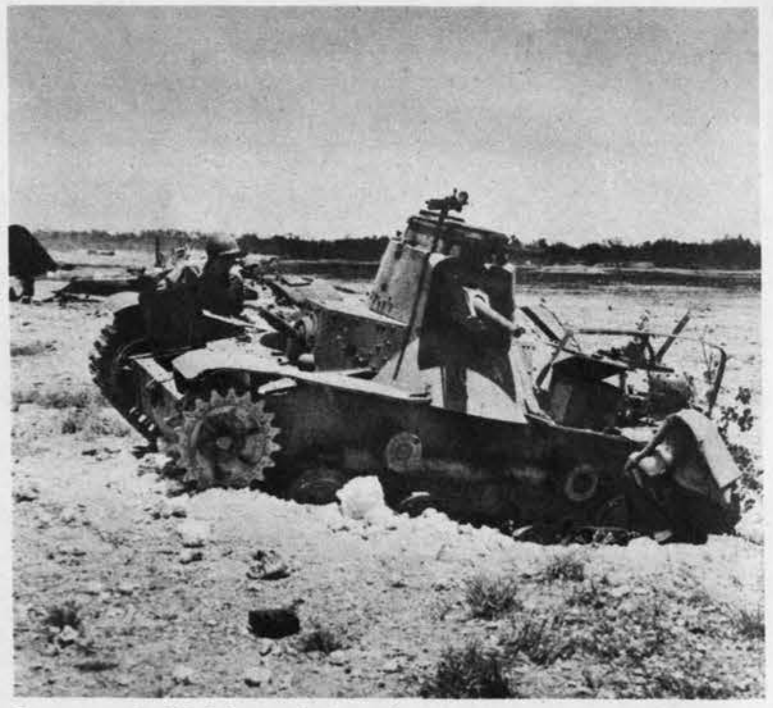
Model 2594 medium tank has a high silhouette, with turret almost flush with the bow. Nine small bogie wheels can be seen. This tank resembles older models, 2589 A & B.



THIS DESOLATE SCENE OF TARAWA WRECKAGE INCLUDES A U.S. LVT(1) (UPPER LEFT) AND A JAPANESE MODEL 2595 LIGHT TANK. THE JAP VEHICLE'S SHATTERED TURRET IS TURNED TO THE REAR AND ONE OF ITS RETURN ROLLERS IS MISSING. THE FOUR BOGIE WHEELS ARE MOUNTED IN PAIRS



Sloping glacis plate and bulges for driver and a gunner mark front of captured 2595 tank (*foreground*). Note 37-mm. gun pointing to rear.

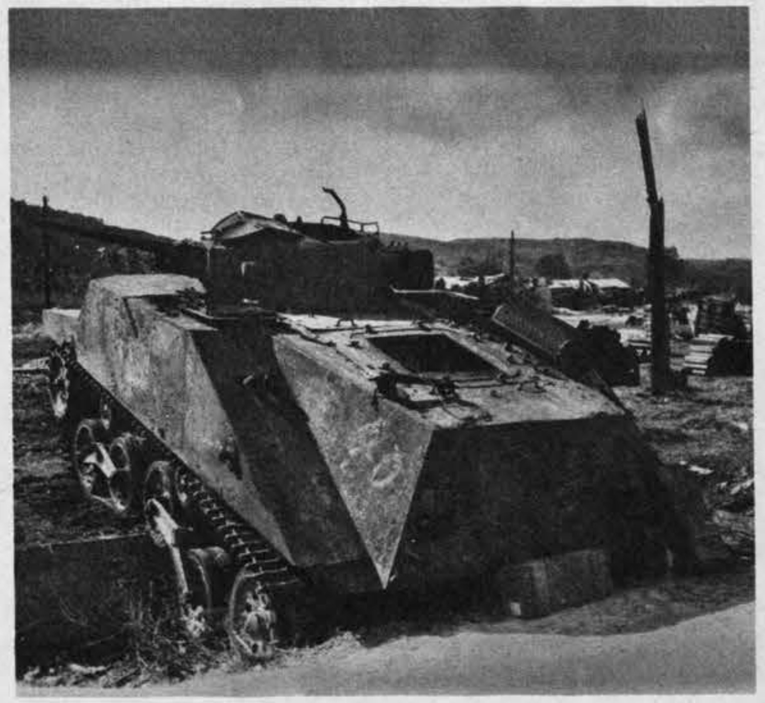


Turret on the Model 2595 light tank is roughly conical, has a cannon in front, machine gun in right rear. Track on the left side is missing.

JAPS' IMPORTANT LIGHT TANK TYPES

The Japanese light tanks which U.S. forces are most likely to encounter are Model 2595 (*above and left*) and the as yet undesignated amphibian (*right*). The Model 2595 is an eight-and-a-half-ton vehicle, seven feet in height and slightly less in width. It is armed with a 37-mm. cannon and two machine guns. Besides thin armor, its two main weaknesses appear to be a vulnerable idler and a turret which can be jammed when turned to overhang the hull. Tall for its overall size, it appears pyramidal from front and rear.

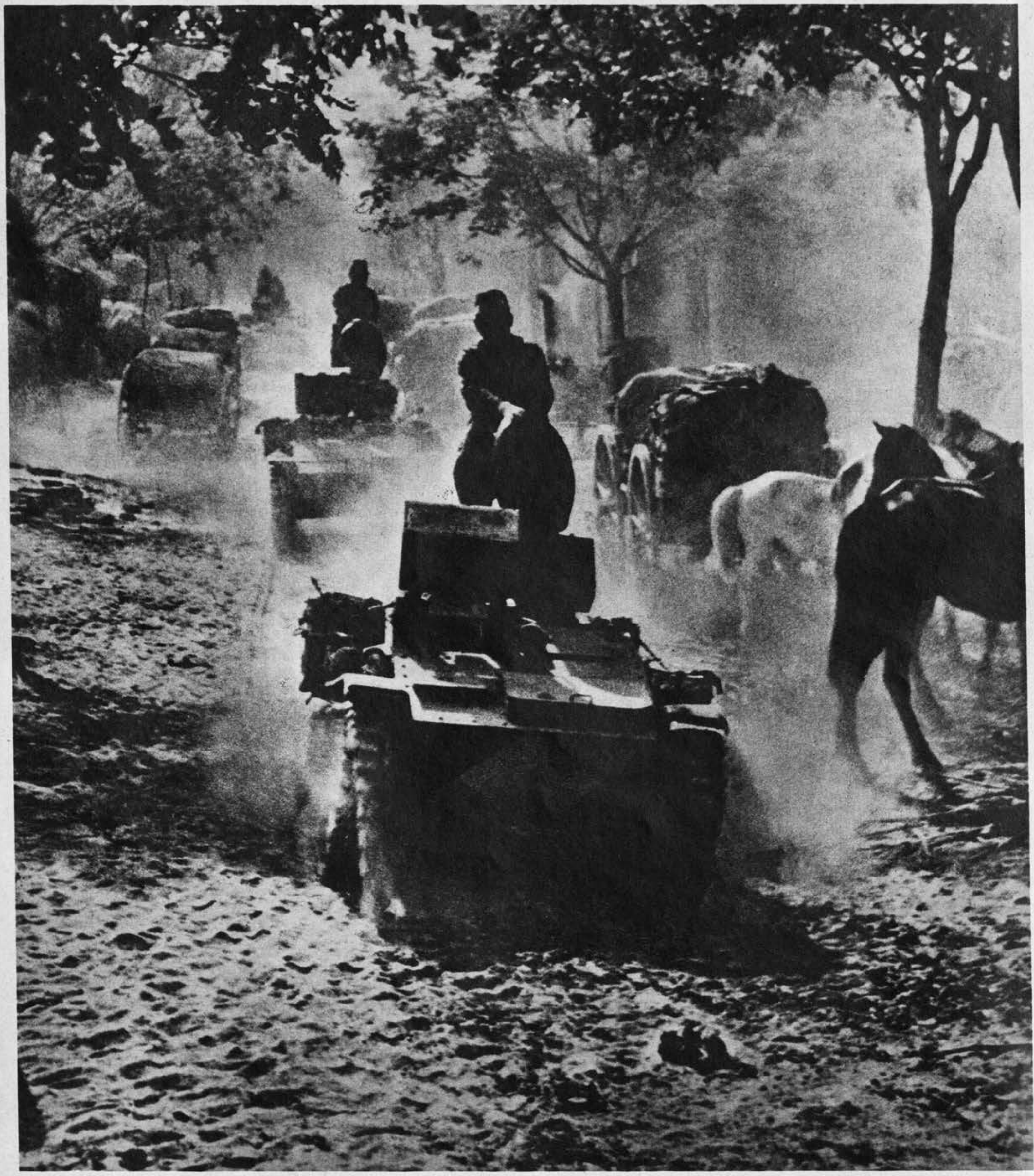
The amphibious tank (see last month's *Journal*) is in many ways a much more efficient vehicle. It is considerably wider than Model 2595, only six inches taller and has a much roomier hull entirely of welded construction. Its big gun, also a 37-mm., has considerably higher muzzle velocity. The rounded turret is flat on top. Two pontoons, one in front and one in the rear, enable the tank to float in the water but are detached as soon as the vehicle hits a beach.



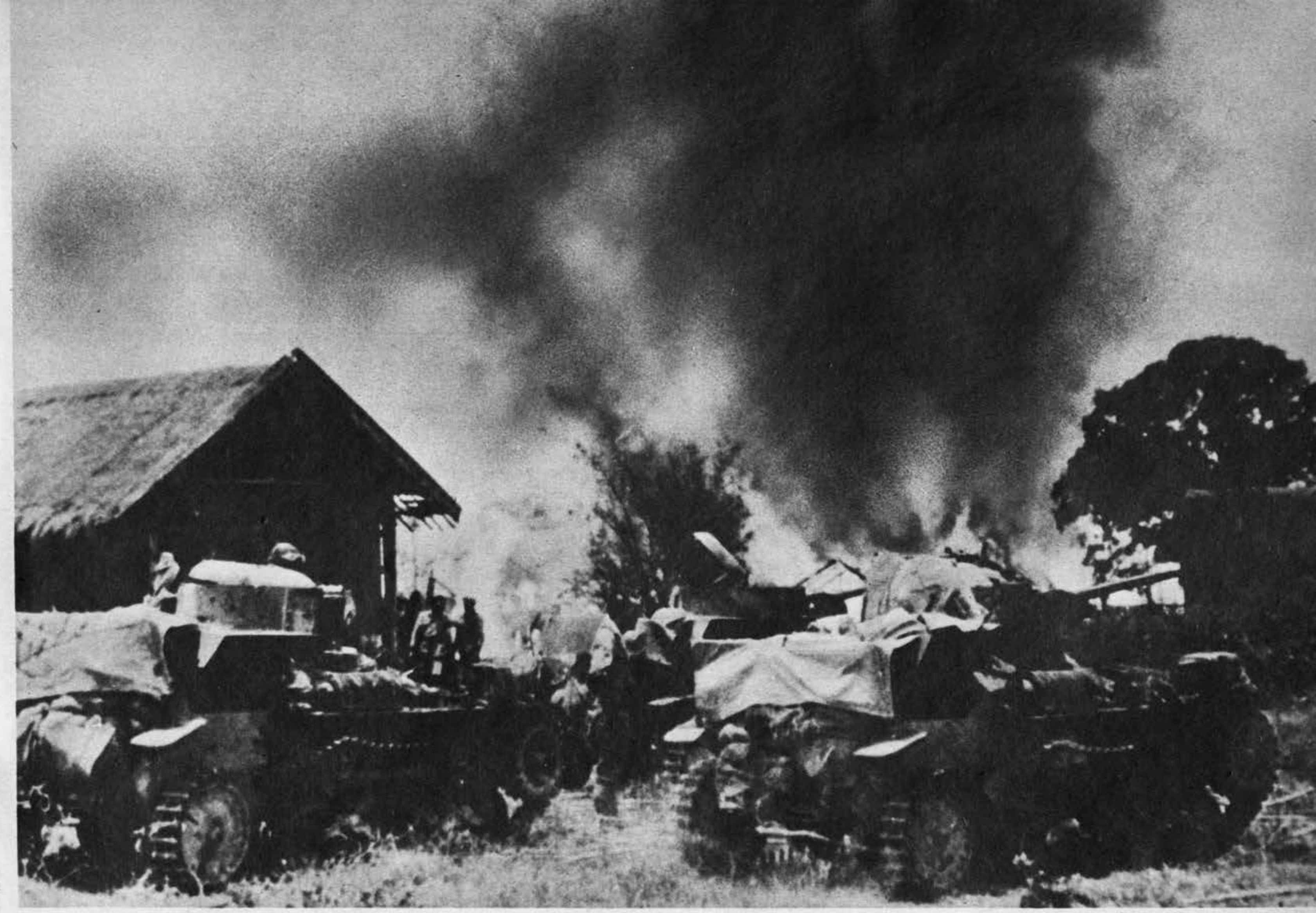
Clean lines and low, wide silhouette help distinguish the Japanese amphibian. Tank's trailing idler serves as a fifth bogie wheel at the rear.

JAPANESE EMPLOY TWO-MAN TANKETTES

Japan's lightest armored vehicles are her two-man tankettes. Weighing between three and four and a half tons, they have been used mainly for reconnaissance, scouting ahead of tank formations. The three models positively identified are 2592, 2594 and 2597. The first two are similar except for the trailing idler on 2594. The turrets are over the hull's rear and carry a single 7.7-mm. MG, their only weapon. Model 2597 has a centered turret with a 37-mm. cannon. It is also known as the 2597 armored car.

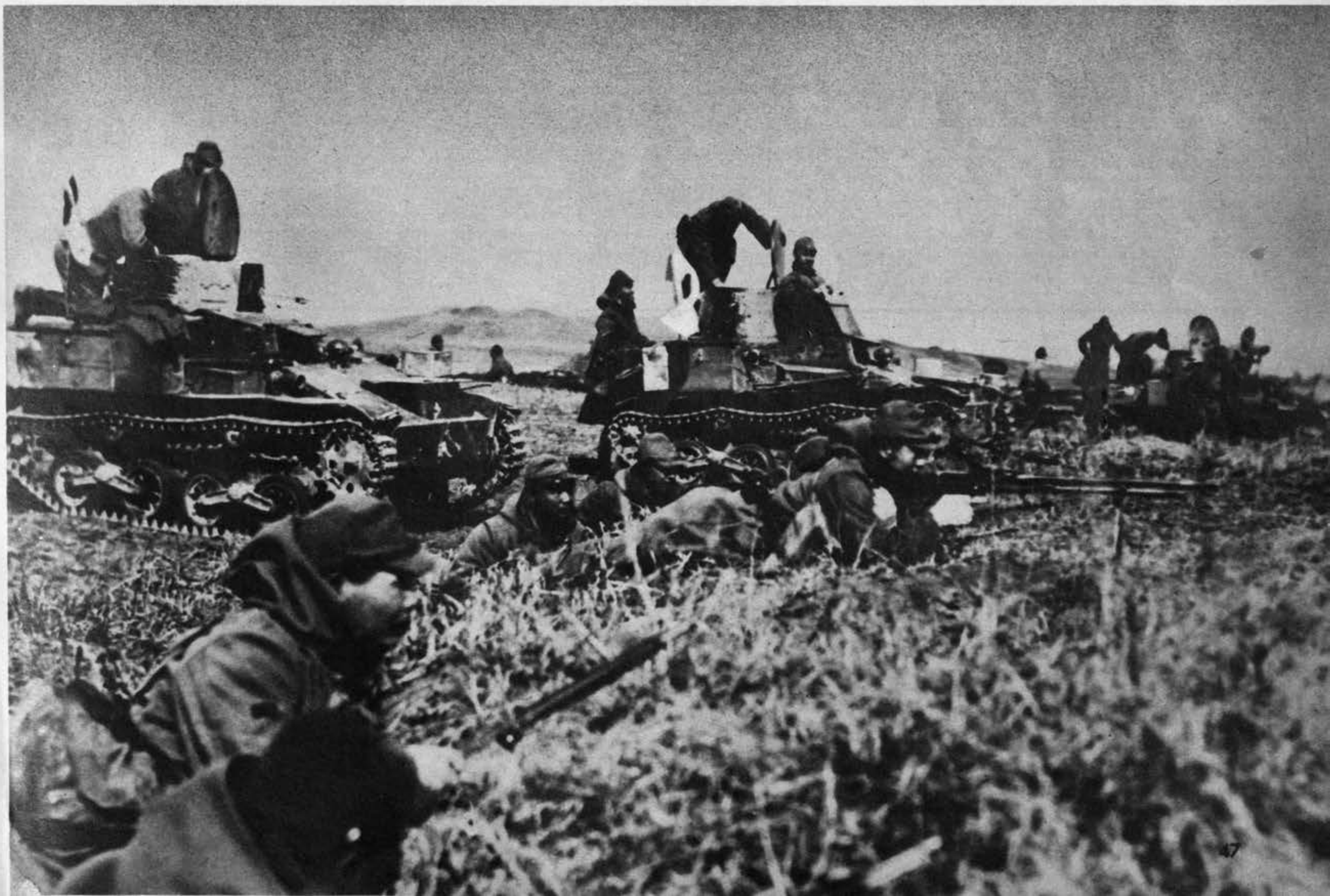


JAPANESE TANKETTE 2592 (ABOVE) LIKE 2594 HAS A LONG GLACIS PLATE SLANTING DOWN TO BOW. WIDTH AND HEIGHT ARE SLIGHTLY OVER 5 FT.



A large idler trails at the rear of Model 2597 tankette's running gear (*above*). Unlike Models 2592 and 2594, it has a smooth front plate which is rounded at the bow. Its top speed is approximately 28 m.p.h.

Turret at rear and long front plate of 2592 tankettes (*below*) give them a bootlike appearance. Small idler is set high. Model 2594 has similar turret and hull but suspension is that of Model 2597 (*above*).



NEWS & MISCELLANY

NEWS

Jap glider, 7 HA Model 2, has a span of over 76 ft., length over 43 ft. and is reported to carry 18 fully equipped men. It is towed by a Sally.

Norm, new Jap reconnaissance plane, may fold up its wingtip floats and is reported to jettison all its floats in case of emergency. Span is 45 ft., 8 in.; length 37 ft., 6 in. Top speed is approximately 310 m.p.h. at 19,686 ft. and rate of climb is 8.5 minutes to 16,405 ft.

Irving is believed to be undergoing an engine change. The present Sakae-21's may be replaced by 2,000-hp. Homare-21 engines.

George has span of 39 ft., 4 in., length of 29 ft., 4 in.

Sam, possible successor to Zeke, has span of 36 ft., 1 in., length of 29 ft., 6 in. Top speed is estimated to be around 397 m.p.h. at 19,686 ft. and rate of climb is 6 minutes to 19,700 ft.

Ju-86R-1, development of the Ju-86P, has several new features. Wing's leading edge is straight without taper; the taper of the trailing edge is moderate inboard and quite pronounced outboard. The wingspan is estimated to be 112 ft.; the length 57 ft. The shape of the nose is somewhat similar to that of the Heinkel 111.

Heinkel 219 is believed to have a long-span version. The outer wing sections have been redesigned with more pointed wingtips. The span is thought to be slightly over 70 ft. as compared with the 60 ft., 8 in. previously reported.

Dornier 24 flying boats operated by the French Air Ministry will soon be seen over France bearing the regular French Air Force markings. Do-24 was originally made in Germany. Its three engines are mounted in parasol wing.

New Jap APD, previously tentatively designated as CM-UN-1, can easily be mistaken for a DD or large minelayer. The armament consists mainly of light AA (at least eleven 25-mm. guns) and a shielded gun in the bow, believed to be a single 4.7-in. DP weapon. The after deck is clear except for heavy tracks which run from very heavy mainmast to sloped stern. Ship has a top speed of 20 knots.

DEVICE 5-DD

Activities having a Device 5-DD should write immediately to CNO, Op-33-D1, Navy Building, Wash., D. C., for new U. S., British, Russian, and Jap plane and ship films. Indicate number of sets desired.

TWELVE BEAUFIGHTERS STRAFE M-CLASS NAZI MINESWEEPERS IN THIS GREAT PHOTOGRAPH

MISTAKEN IDENTITIES

While flying at 10,000 feet over the Pacific someone in a nine-plane TBF attack group sighted a small vessel circling at a relatively high speed and leaving a pronounced wake. The flight leader, believing it to be an enemy destroyer taking typical Japanese evasive action, ordered an attack. Two 2,000-lb. bombs were dropped, the nearest about 50 yards off, before the target was recognized as an Allied submarine. The sub later reported being bombed and sustaining minor damage.

A recent intelligence report tells of an Allied mission over Bremen during which low-flying FW-190's were encountered with landing gear lowered. Some Allied crews mistook them for P-51's with wing tanks. In last month's *Journal* it was pointed out how these tanks might be mistaken for wheels with pants.

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QUIZ ANSWERS

QUIZ NO. 1

1. PBM's
2. TBM
3. SC-1
4. Zeke (?) and B-25
5. Dinah
6. A-20
7. C-46
8. Tojo
9. Helen
10. Jake

QUIZ NO. 2

1. PB4Y-2
2. YP (District Patrol Vessel)
3. PT boat
4. B-24's
5. Wreckage
6. Fishing vessel
7. L to R: New Orleans Class CA; Cleveland Class CL; New Orleans Class CA
8. Dead whale
9. Beached Jap cargo vessel (Sugar Able Item)
10. Jap armed trawler
11. Emily
12. Nachi Class CA
13. Jap landing craft, LST
14. Nachi Class CA
15. U.S. Submarine, Balao Class
16. Pennsylvania BB
17. SBD's

QUIZ NO. 3

1. U.S. LVT(A)(4)'s
2. British Cromwell
3. Japanese Model 2597 medium tank
4. Japanese amphibious tank
5. British Churchill
6. U.S. M-5A1
7. German SP light howitzer, Wasp
8. U.S. M-10
9. German PzKw IV

QUIZ NO. 4

1. L to R: New Orleans Class CA; New Mexico Class BB; New Orleans Class CA; Fletcher Class DD; Wichita CA; Converted flush-decker (*foreground*)
2. U.S. CVE (Casablanca Class)
3. L to R: Nachi Class CA; Yamato Class BB
4. Essex Class CV
5. L to R: South Dakota Class BB; Independence Class CVL

QUIZ NO. 5

1. P-51
2. TBM
3. Zeke 52
4. Sunderland
5. F4U
6. SB2C
7. Typhoon
8. Tony
9. P-47N
10. Sally
11. Jill
12. Halifax
13. Dinah 3
14. A-26
15. C-54

CREDITS

The pictures used in the *Journal*, unless otherwise specified (*see below*) came from the Allied Armed Services.

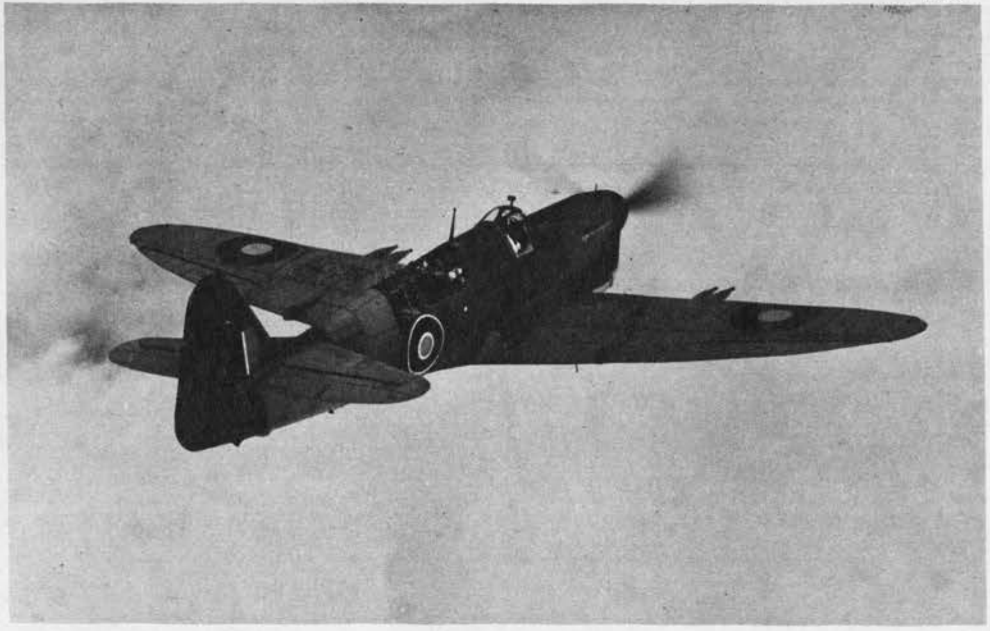
2—Third row right, Acme
4—Bottom right, Acme
5—Right center, Bob Landry
6—Top, Int.
12—Top left, Acme
16—Third row right, Acme
17—Third row right, Frank Scherschel
24—First row right, Int.; second row right, A. P.; third row right, Myron H. Davis; fourth row left, Robert Capa; fourth row center, Johnny Florea; fourth row right, Frank Scherschel
42-47—The information contained on these pages is taken from *Japanese Tanks and Tank Tactics*, Military Intelligence Service, War Department
42—Bottom center, A. P.
43—Bottom right, Paul Dorsey
44-45—Top, Peter Stackpole
46—Rudo S. Globus
47—Bottom, Acme
51—Third row right, Int.
Abbreviations: A. P., Associated Press; Int., International

The beautiful photograph of the PBM Mariner which forms this month's cover is one of a series taken by an official Navy photographer during some tests of jet-assisted take-off equipment at a major Pacific base.

FIGHTER

U. K.

FIREFLY I

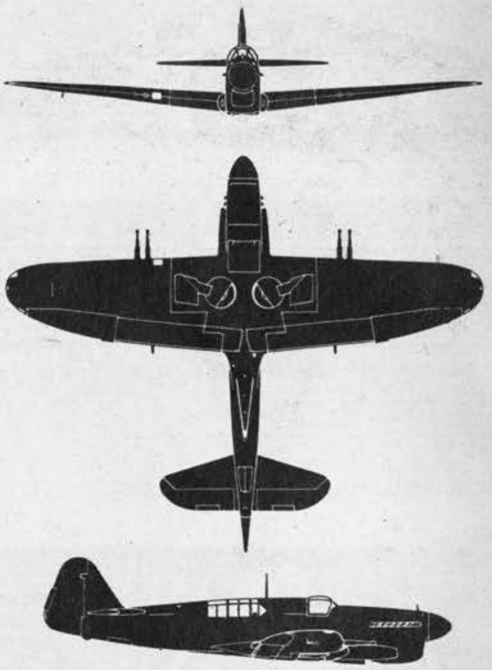


RECOGNITION FEATURES: Single-engine, low-wing monoplane with single fin and rudder. Wing has straight leading edge, rounded tips, curved trailing edge. Wing is rather thick with dihedral from roots. Large spinner with deep scoop gives nose appearance similar to P-40. Fuselage is deep and thickset, with observation greenhouse separated from bulbous cockpit. Fin and rudder is triangular. Tailplane is set high and forward of the rudder, tapers sharply on leading edge, has gently raked tips. Trailing edge is straight.

INTEREST: Britain's new carrier-based, multi-purpose fighter is a replacement for the Fulmar. Serving as a nightfighter and long-range fighter, the two-seater Firefly is also provided with a rear observation greenhouse for reconnaissance missions. It is powered by a Rolls-Royce Griffon engine. Two protruding 20-mm. cannon in each wing make it the most heavily armed ship-borne fighter in the world. Like many British-built Royal Navy aircraft, the Firefly is a product of Fairey Aviation Company.

JANUARY 1, 1945
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3



SPAN: 44 ft., 6 in.
LENGTH: 37 ft., 7 in.
APPROX. MAX. SPEED:
SERVICE CEILING:

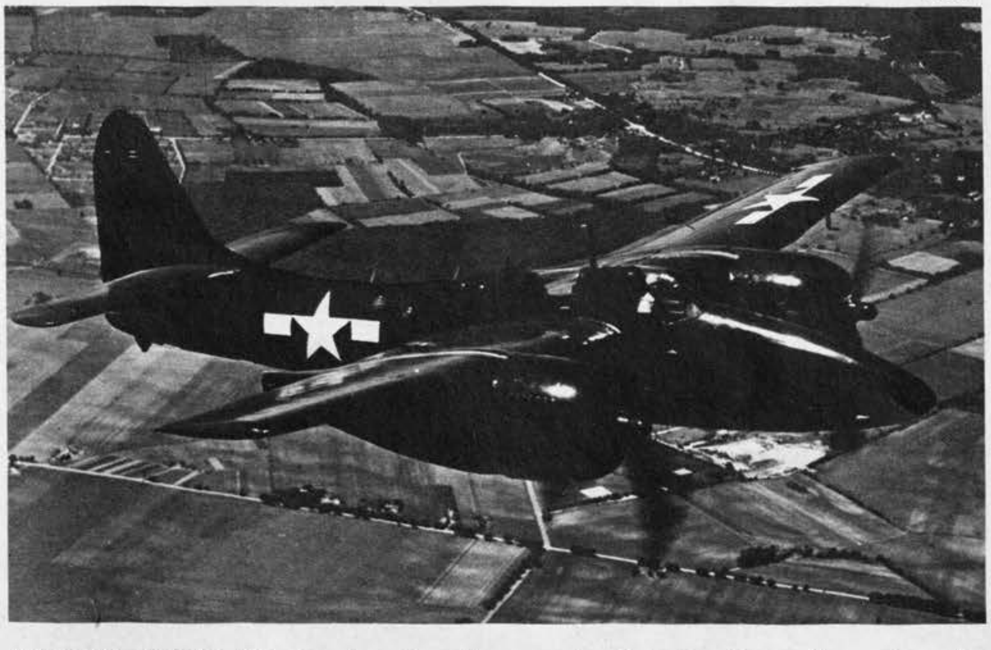
RESTRICTED

NOTE: This page is to be cut along dotted lines (*above and below*), added to the proper nation's section in the Recognition Pictorial Manual. The dots indicate perforations.

FIGHTER

U.S.A.

F7F-2

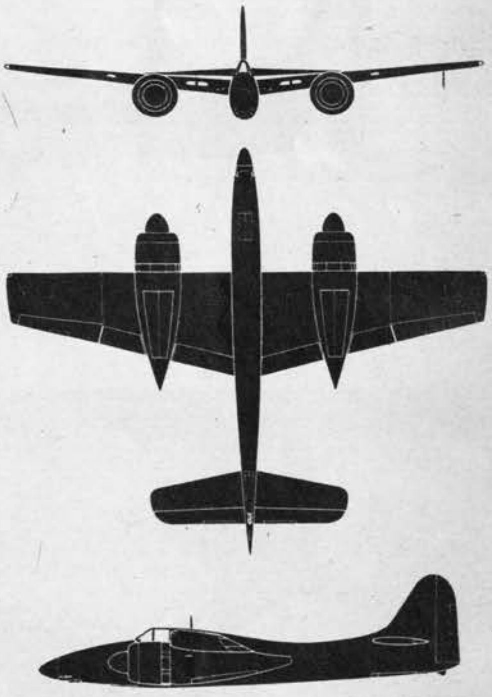


RECOGNITION FEATURES: F7F-2 is a twin-engine, mid-wing monoplane with single fin and rudder. Wing has straight leading edge, sharp taper on trailing edge. Tips are slightly raked, but give impression of being squared off. Fat, underslung nacelles project beyond the trailing edge. Nose is long, pointed and smoothly streamlined. Two-place cockpit is divided into two glassed-in sections and fairs smoothly into fuselage. Dorsal surface is a graceful, concave line which sweeps up into the high fin and rudder. Long tailplane is tapered on the leading edge, straight on the trailing edge and has raked tips.

INTEREST: Known as the Tigercat, the F7F is Grumman's first twin-engine fighter design since experimental F5F Skyrocket appeared in 1940. It is a radical departure from chunky fuselage of previous Grumman fighters, but retains their angular wing shape. The F7F was developed for use from carrier decks and will probably be used as a land-based nightfighter and twin-engine fighter by the Navy and Marines.

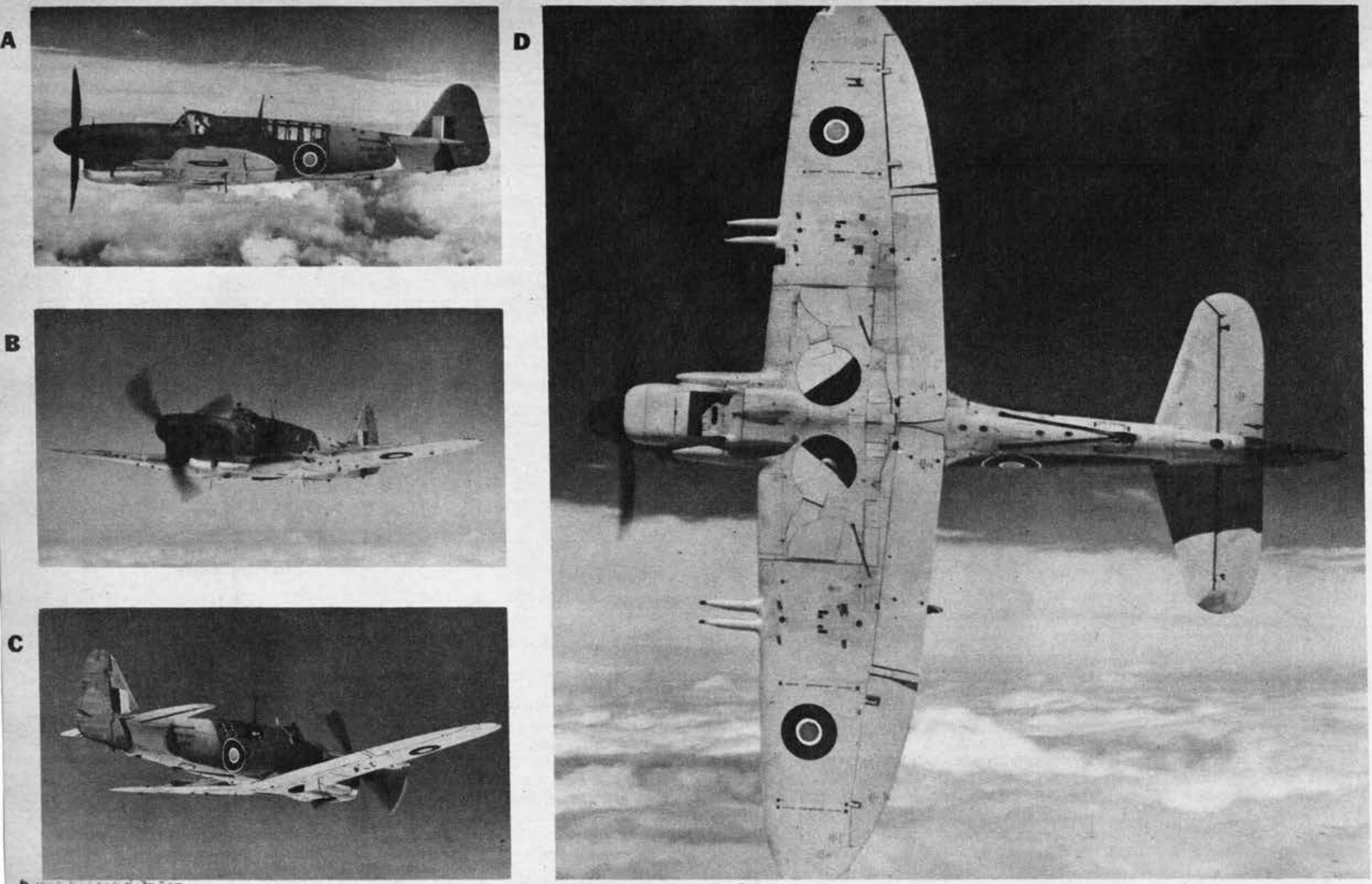
JANUARY 1, 1945
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3



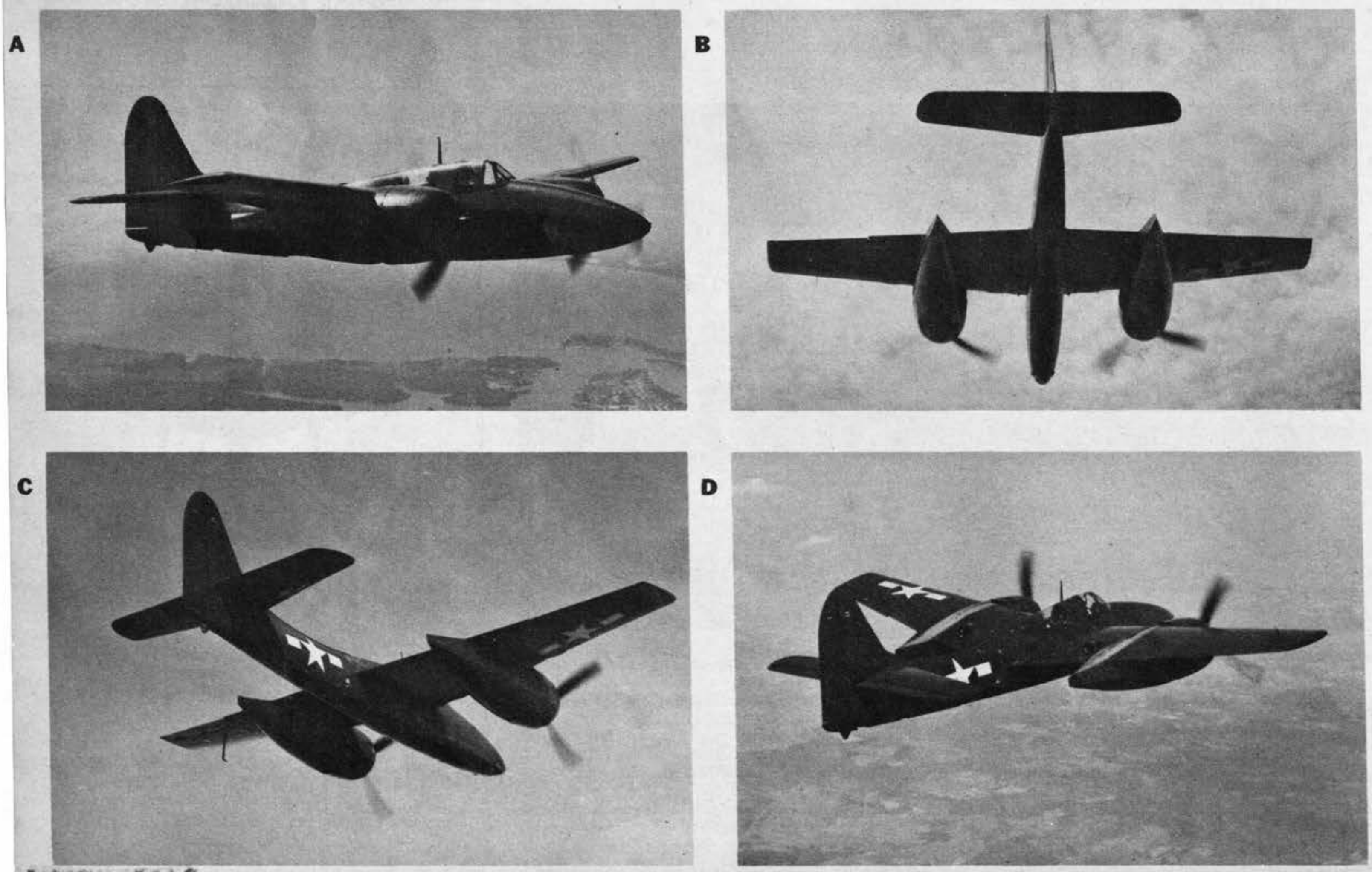
SPAN: 51 ft., 6 in.
LENGTH: 45 ft., 4 in.
APPROX. MAX. SPEED:
SERVICE CEILING:

RESTRICTE

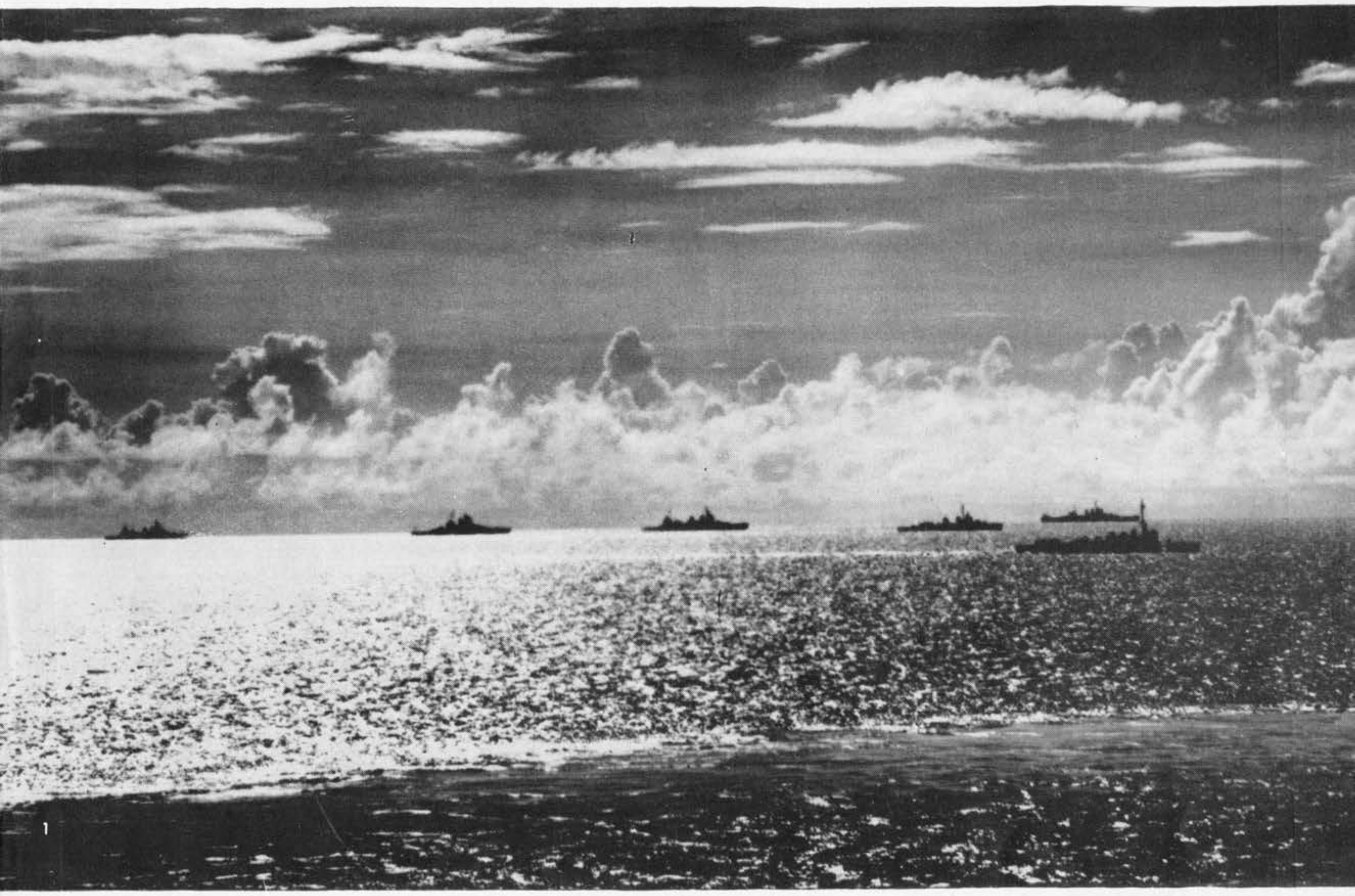


FIREFLY I flew cover for bombers attacking the Tirpitz in Alten Fjord, and has also taken part in fighter sweeps along the Norwegian coast. Fully retractable Youngman flaps enable the heavy, high-powered Firefly to land and fly slowly.

F7F-2, Grumman's sleek Tigercat, is the U. S. Navy's first operational twin-engine fighter. Tigercat combines a completely streamlined fuselage with angular wing. Relatively short span gives the F7F compact appearance in plan view.



QUIZ NO. 4: TASK FORCES AND TARGETS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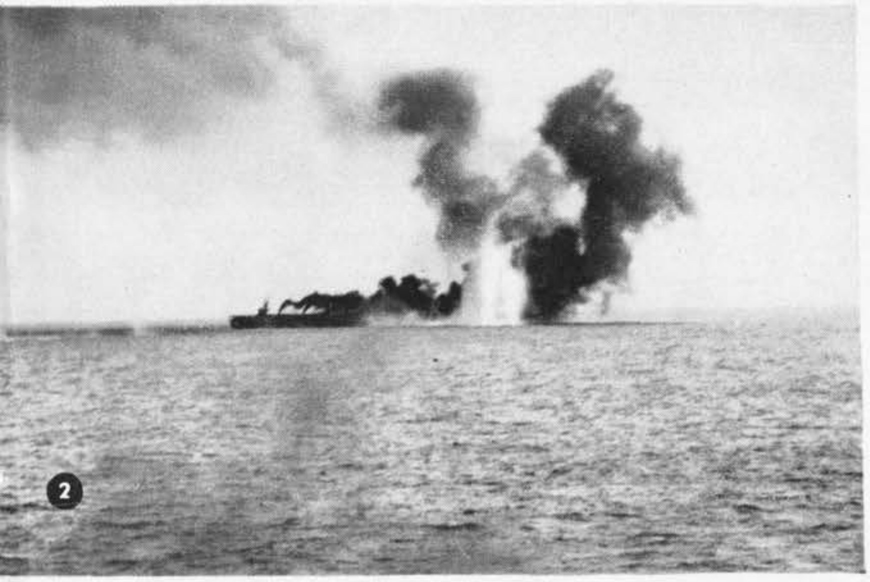
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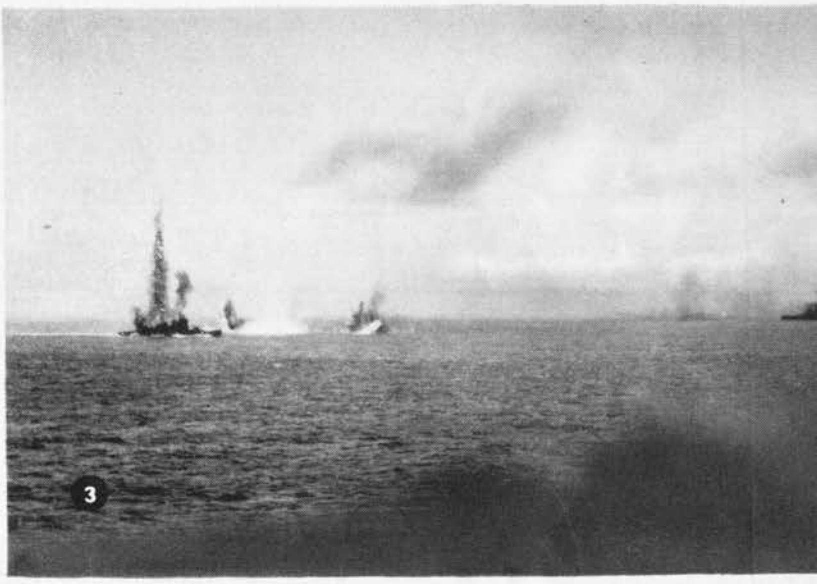
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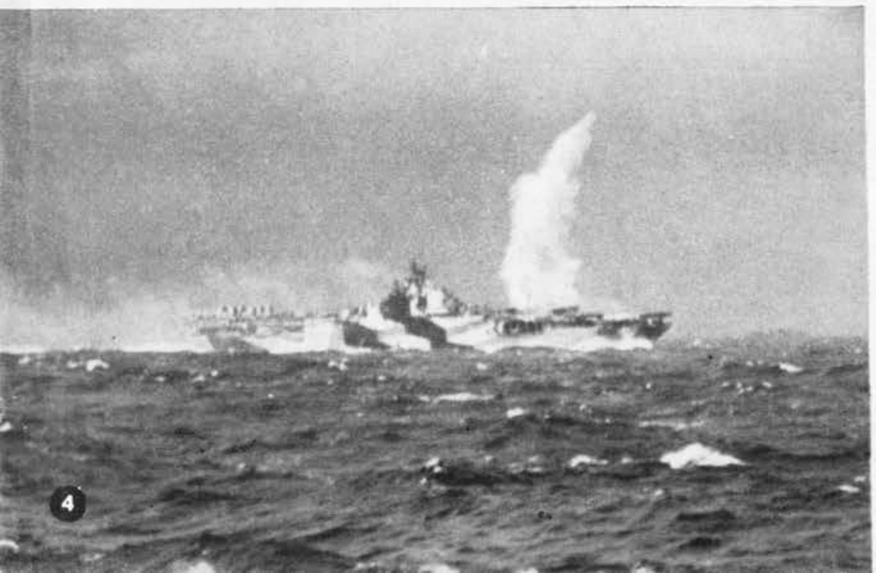
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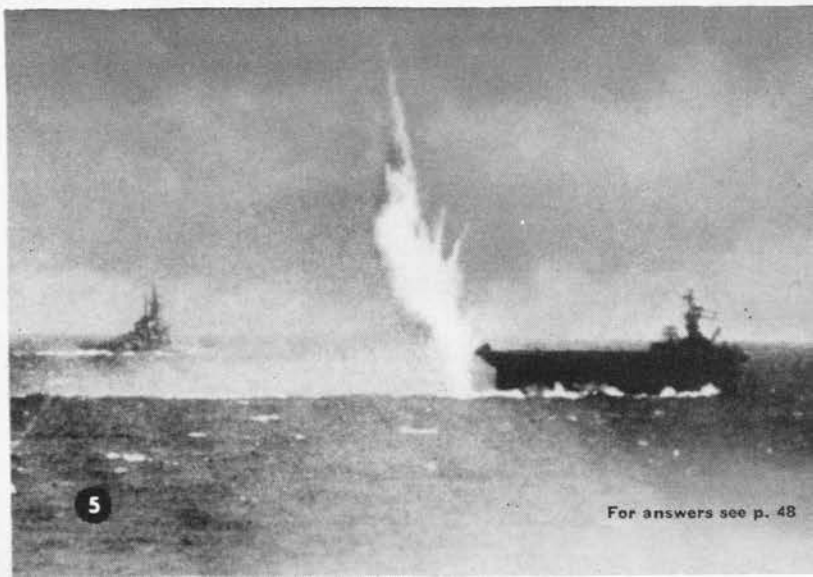
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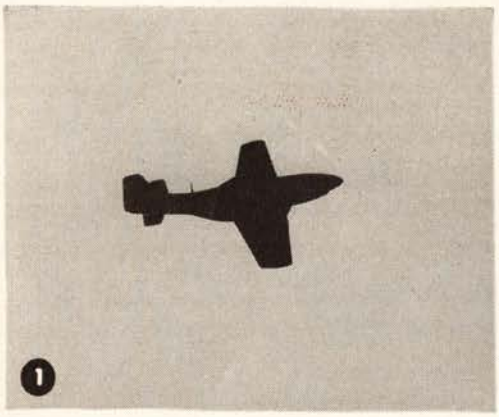
For answers see p. 48

QUIZ NO. 5: THIS MONTH'S SILLOGRAPHS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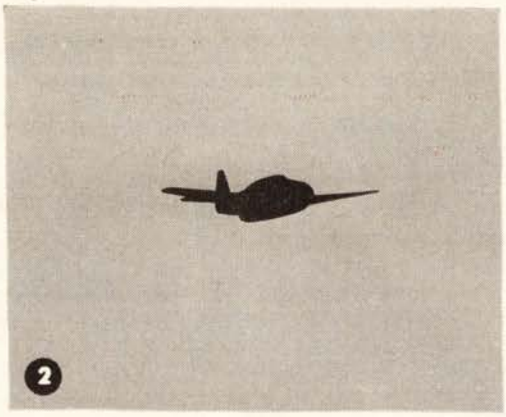
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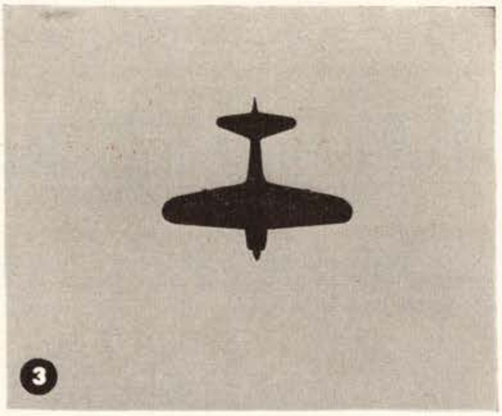
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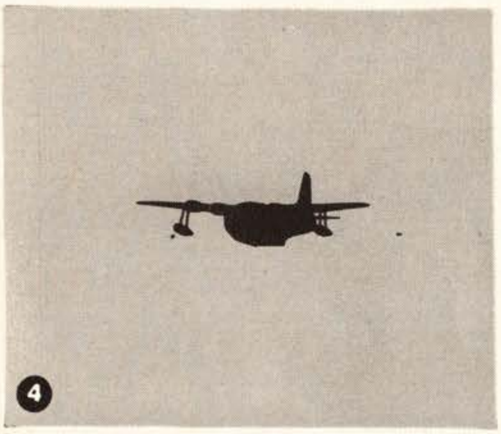
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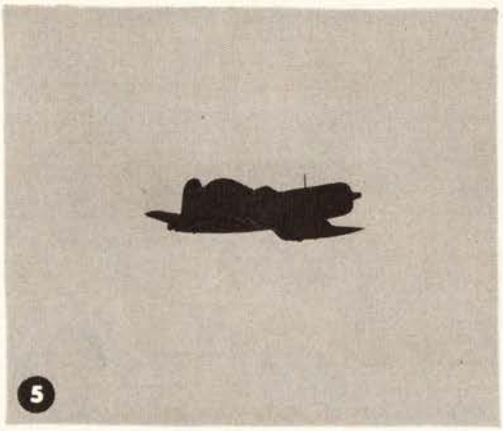
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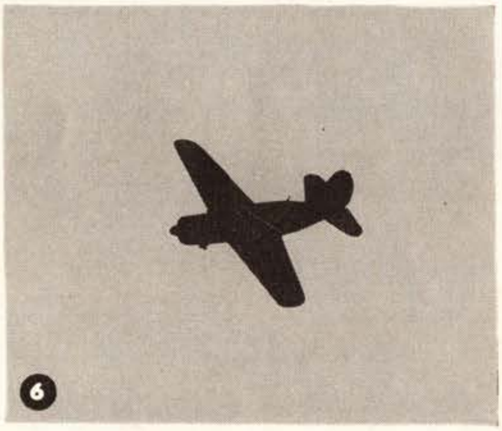
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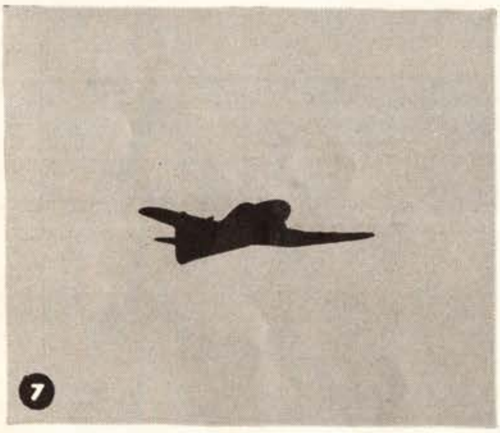
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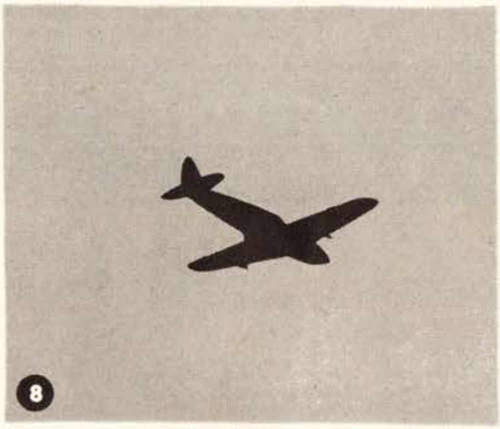
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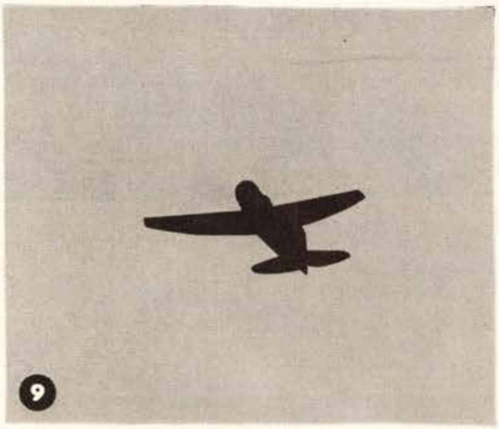
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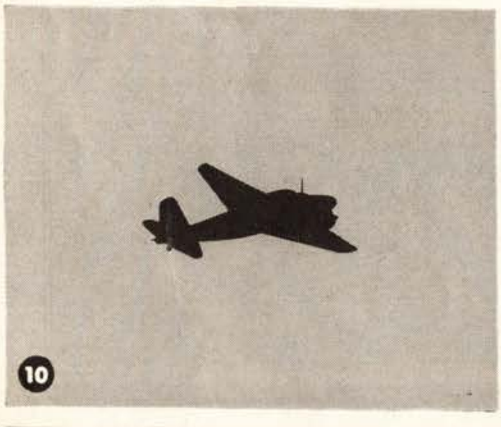
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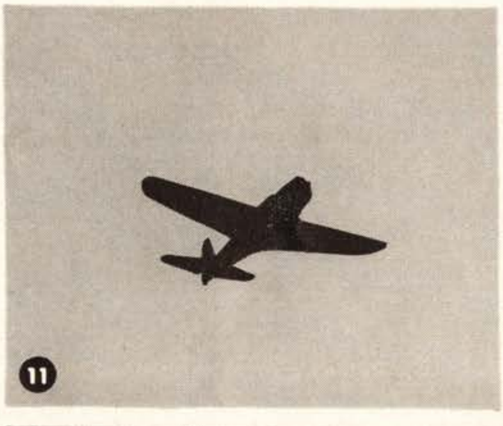
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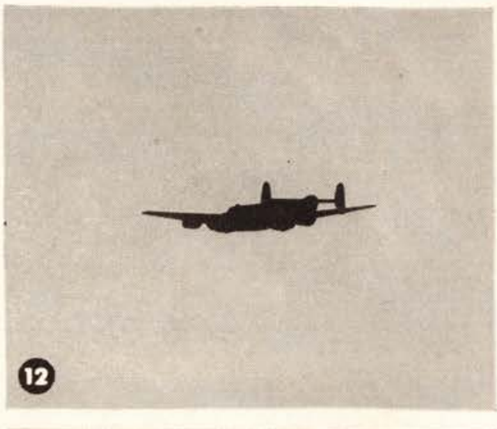
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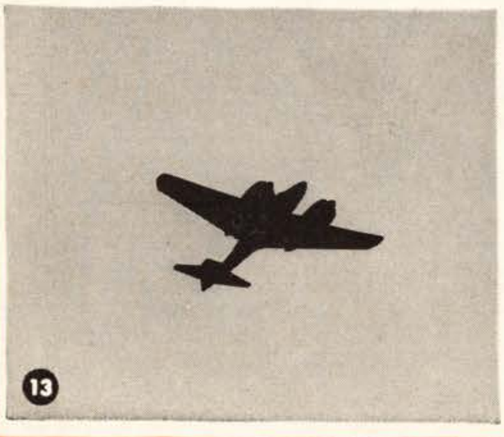
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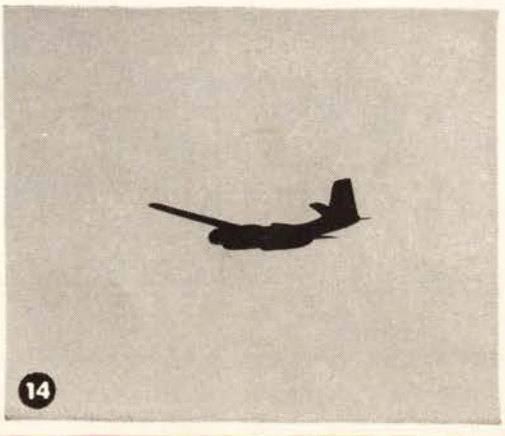
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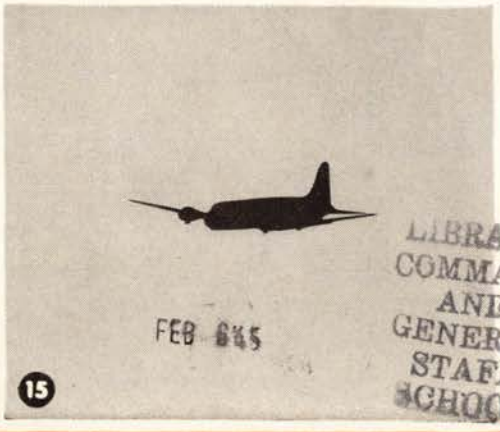
15

LIBRA
COMMA
AND
GENERA
STAFF
SCHOO
FEB 6 45

For answers see p. 48

RECOGNITION
JOURNAL

NIGHTFIGHTER

~~RESTRICTED~~

MARCH, 1945
NUMBER 19

WAR DEPT.
NAVY DEPT.

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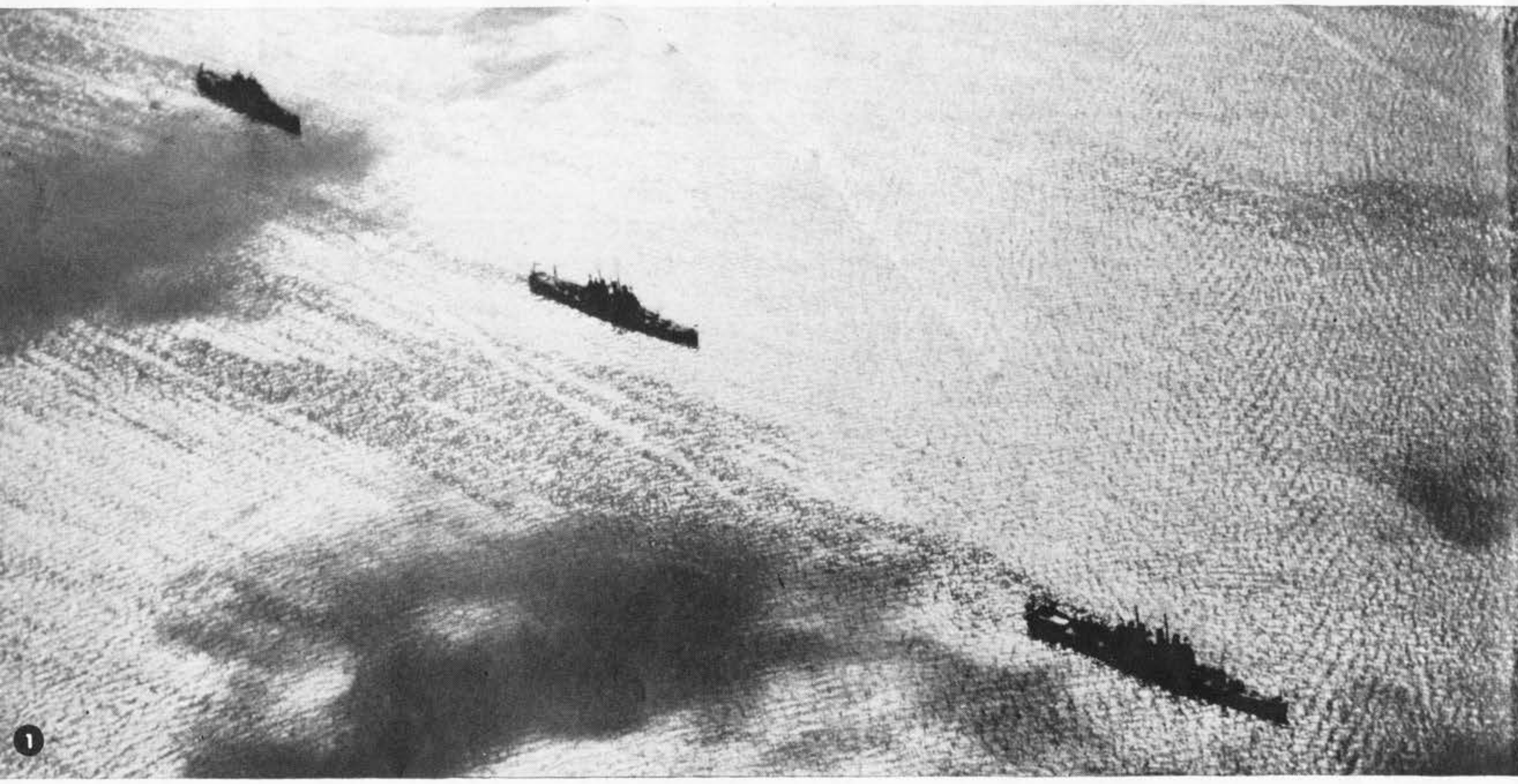
QUIZ NO. 1: WARRING NAVIES' CRUISERS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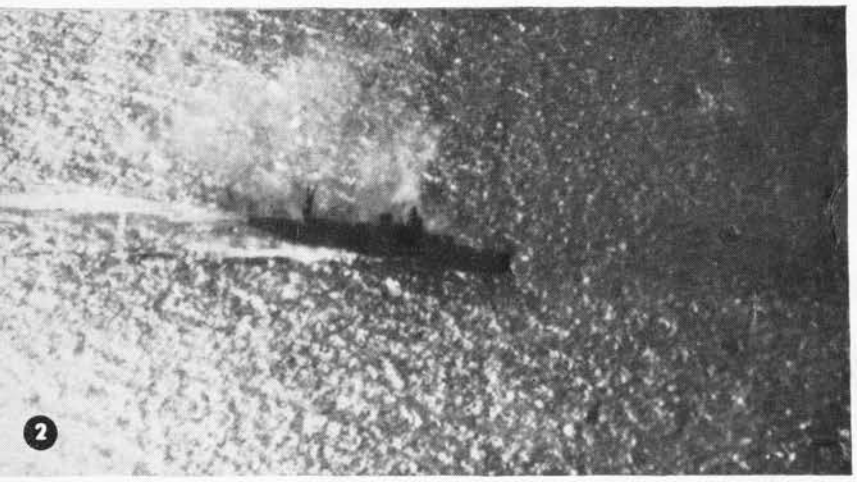
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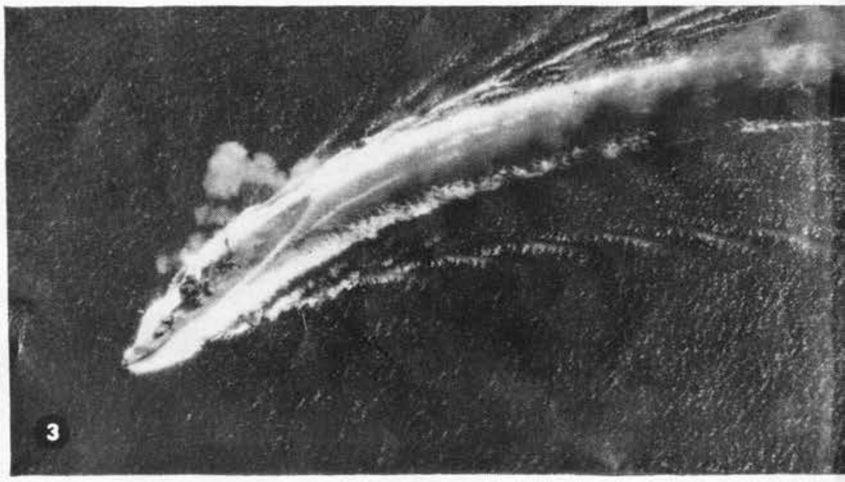
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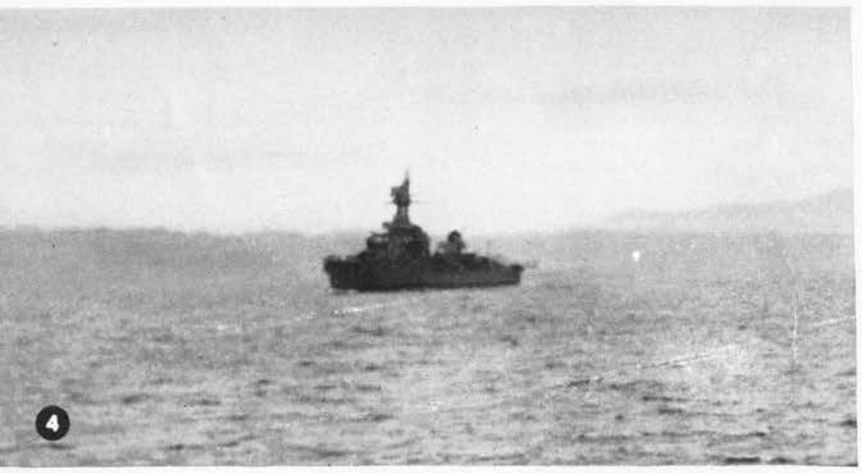
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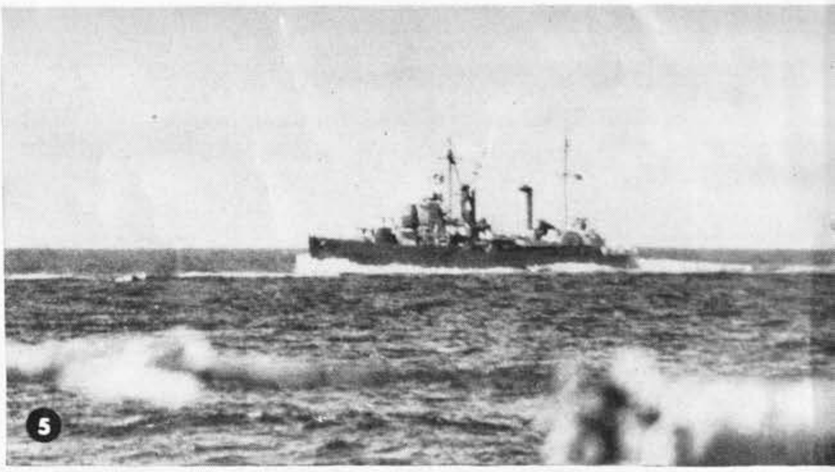
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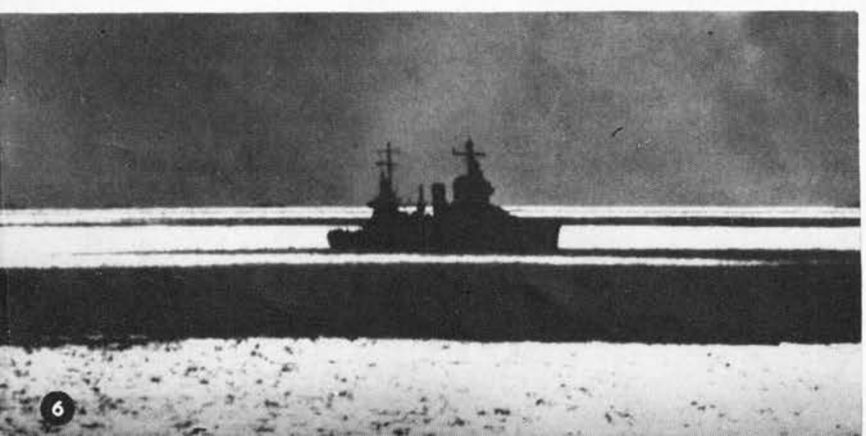
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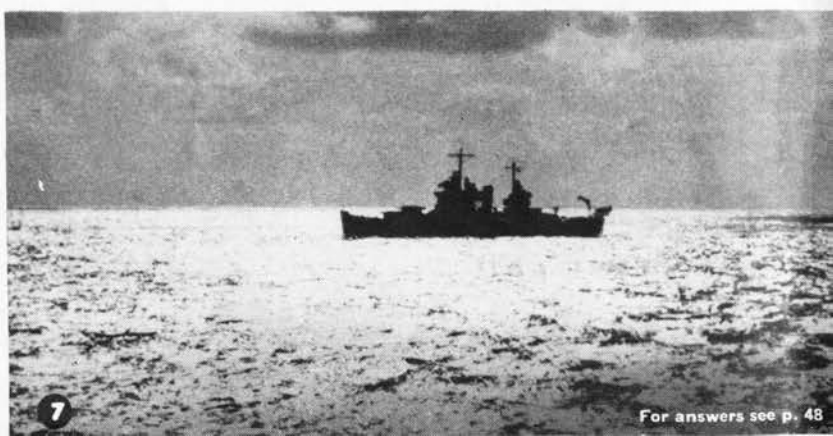
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For answers see p. 48

NUMBER 19

RECOGNITION
JOURNAL

MARCH, 1945

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THIS MUST STOP

The U. S. has now been at war for three years and three months. In the early days of the war, errors in recognition were frequent and because of the understandable confusion were to be expected. It was to remedy this tragic waste of men and materiel that a thoroughgoing recognition program was set up. Ever since then the armed forces have been slugging away at this problem, trying to get the subject across by any and all means—courses, lectures, training devices, publications like the *Journal*. No effort has been spared to give men in the field and at training bases every possible aid in knowing their friends from their foes. This is as it should be, as any man knows who has taken gun bursts from a friendly plane or ship, or has taken a pot shot at a plane only to learn later that it was someone on his own team.

In spite of the deadly seriousness of the problem and in spite of the vigorous instruction program, terrible recognition mistakes still occur. This must stop. No matter how expertly planned or carried out a course of instruction may be, it depends on the utmost cooperation of students in the classroom and in the field for final results. Pilots and gunners have got to work harder on the subject during their time at rear bases. Most important, they cannot let down on the job in the field. New information and "refresher" material must be followed closely. Above all, carelessness must stop.

This is each man's individual responsibility; he cannot depend on some superior to recognize for him. Successful recognition depends on him alone. In many recent incidents, one man, sloppy in recognition, has opened fire on a friendly plane and set off the guns of a whole fleet.

Picked at random from increasing numbers of recognition mistakes, the following prove we must tighten up:

One: "Near the Marshall Islands, three carrier-based fighters came out of clouds near the sun in a shallow dive, veered toward our CV's and were fired on by the 40-mm. and 20-mm. AA of a CV, BB and cruiser. Planes were identified as F6F's, 'Cease firing' was ordered. One F6F seen to smoke, lose altitude and land in the water."

Two: "Another officer and I were flying two captured FW-190's back from Italy. Over the Mediterranean we ran into some P-38's which paid no attention to us although they were too far away to see our U. S. markings. A flight of P-40's encountered later also went on its way. Next surprise was at a landing field where the operations officer reported us as 'Two P-47's.' "

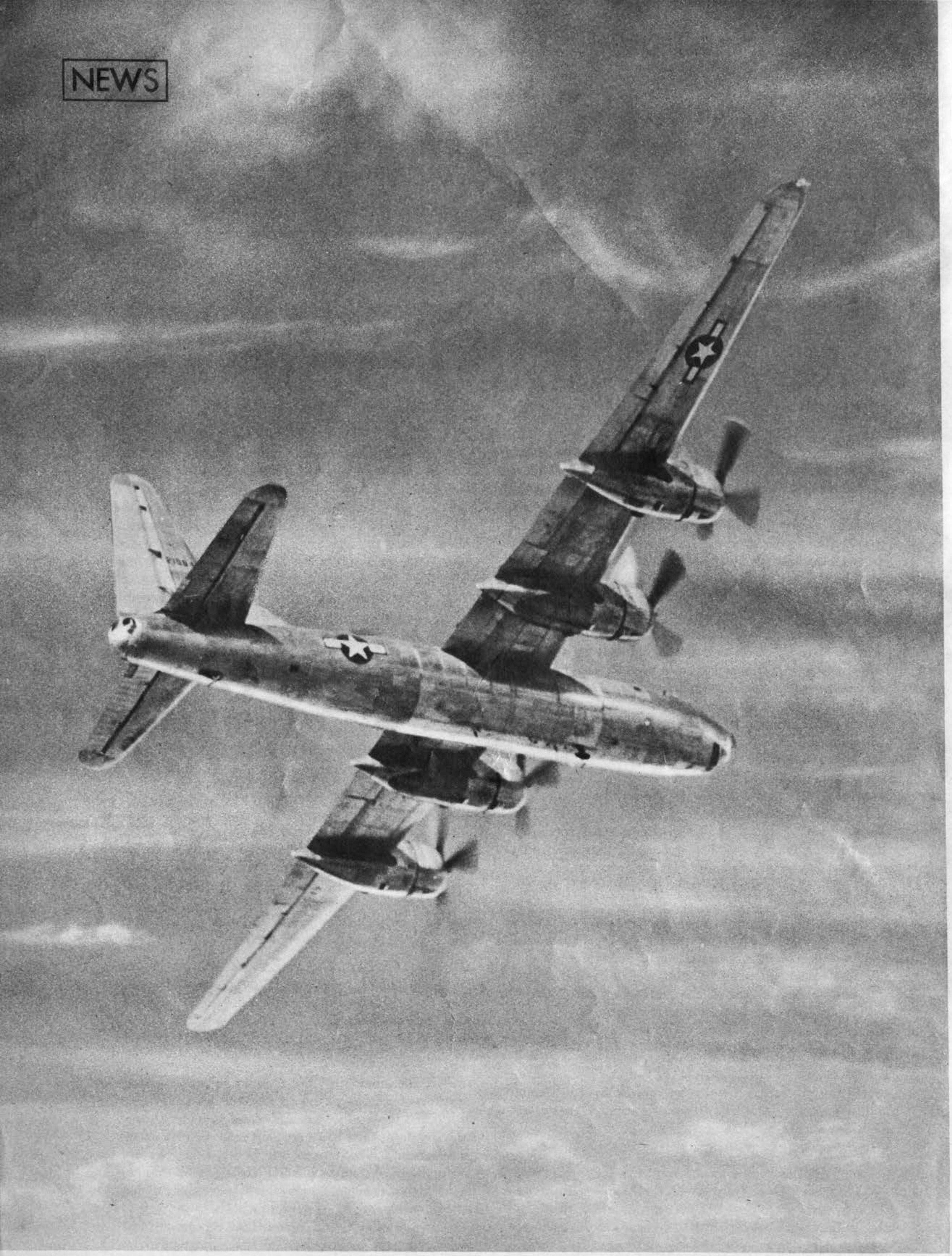
Three: "I was careful to avoid flying over our naval craft in the bay (Empress Augusta Bay) so as not to attract their AA fire. I passed a lone destroyer some 800 yards away which opened up with a 50-cal. machine gun, and I was caught in a halo of tracers. I felt the impact of bullets hitting my aircraft. I broke away from the destroyer, heading towards the Treasury Islands. Immediately afterwards, a Corsair made a quarter-astern attack on me. I saw tracers appear behind me and took evasive action. The Corsair broke off its attack. . . ."

Four: "An LST sighted a TBF on the port bow over an anchorage area and immediately identified it. Visibility was excellent and Allied markings clearly visible. Orders were given not to fire. As the TBF approached, small craft opened fire, closely followed by other LST's. Plane attempted evasive maneuvers, but the fire was so intense he didn't have a chance. The plane crashed in flames 150 yards on the port quarter of this ship."

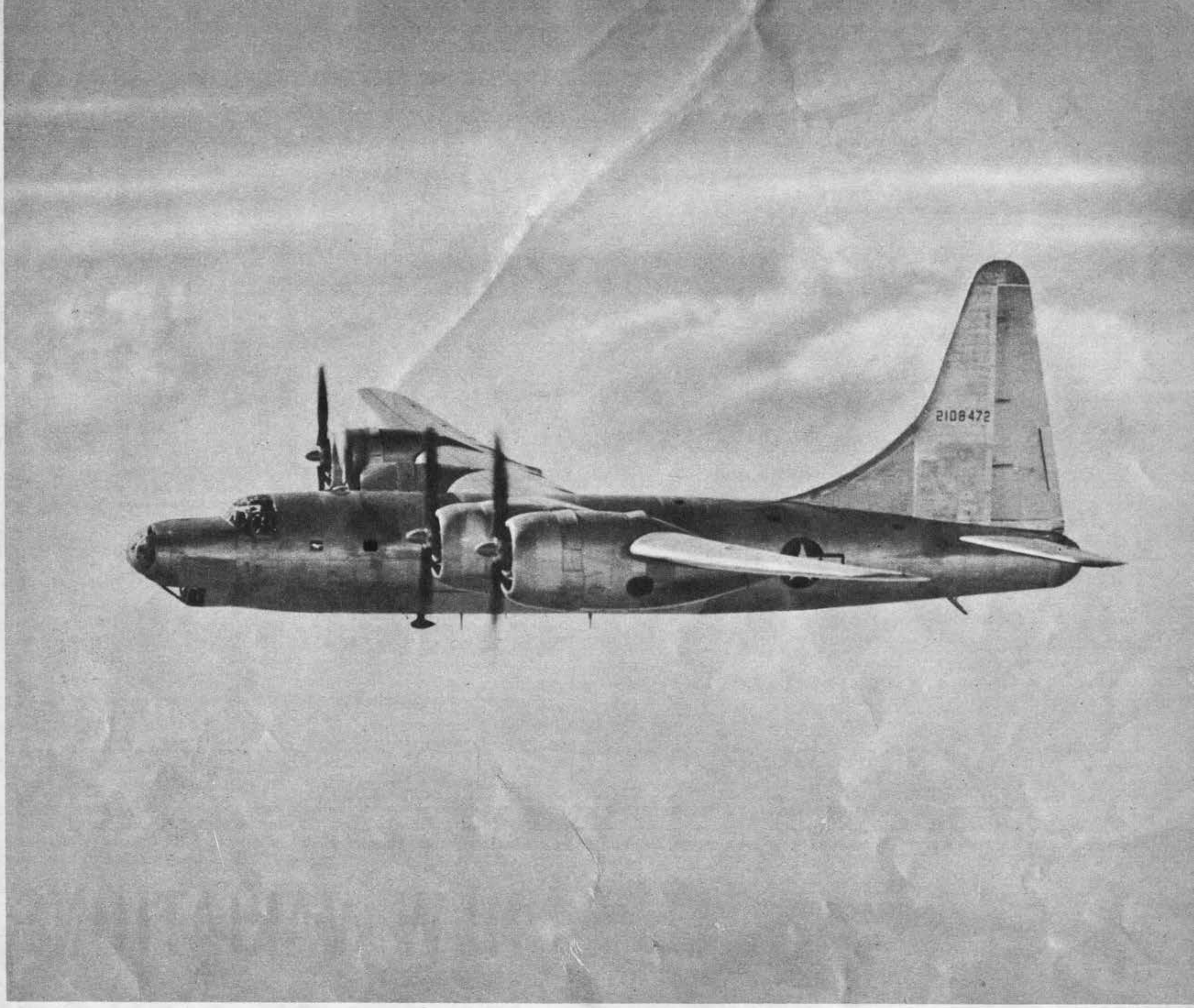
Five: "An F6F pilot spotted seven other F6F's and approached for a rendezvous. The division leader turned his division to meet this plane which was still too far off to be recognized. The leader put his sight on the approaching plane, waiting for it to turn aside and be recognized. When it still continued to approach head-on, he opened fire with a short burst at 500 yards. The plane ahead ducked under his tracers and was recognized as friendly. It then joined up from the rear."

Six: "On K-2 Day a CVL dispatched two fighters, and a CA two seaplanes, to the rescue of a downed pilot. On arrival, they found a submarine conducting the rescue. Our fighters overheard, 'Oh boy, there's a sub. Let's dive on him.' Fortunately the Air Coordinator heard the transmission and prevented an attack."

And so the story goes. But it must go on no longer. Every man must tighten up on recognition to save his own life and those of his comrades and to inflict greater damage on the enemy. In a statement from Headquarters, Mediterranean Allied Tactical Air Force, Major General Cannon drives the point home: "Recognition training is an integral part of combat operations. Somewhere, sometime, you will meet the enemy and with only yourself to depend on you will either pass your final recognition test or flunk forever. . . . Be alert. Take advantage of every training opportunity and your knowledge and concerted effort will speed Victory—our target for tomorrow."



B-32's round fuselage hangs from the narrow, tapering Davis wing. The airplane's four huge nacelles barely extend beyond the wing's trailing edge. Tremendous expanse of single fin and rudder soars upward to a rounded tip. Trailing edge is straight, rising at a steep angle.



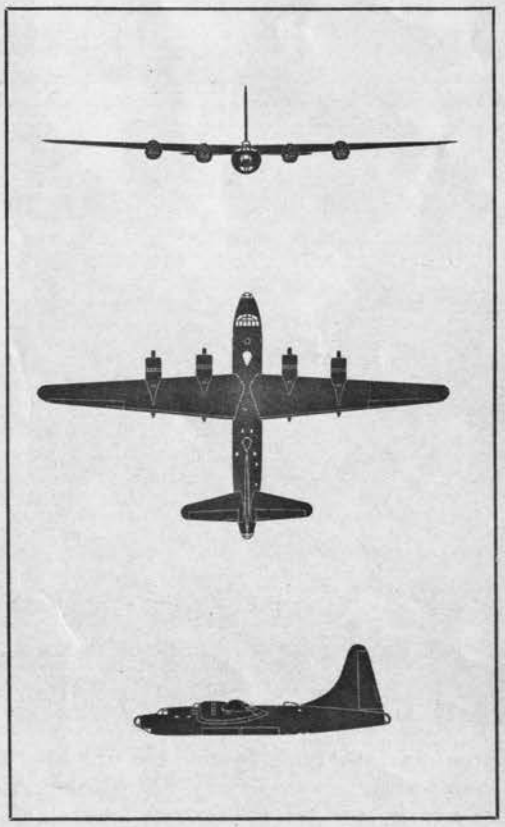
DOMINATOR'S WING, SET WELL BACK, LEAVES LONG SNOUT WITH BALL TURRET AT THE END. BOMBARDIER'S POSITION BELOW ADDS GLASSY "GRIN"

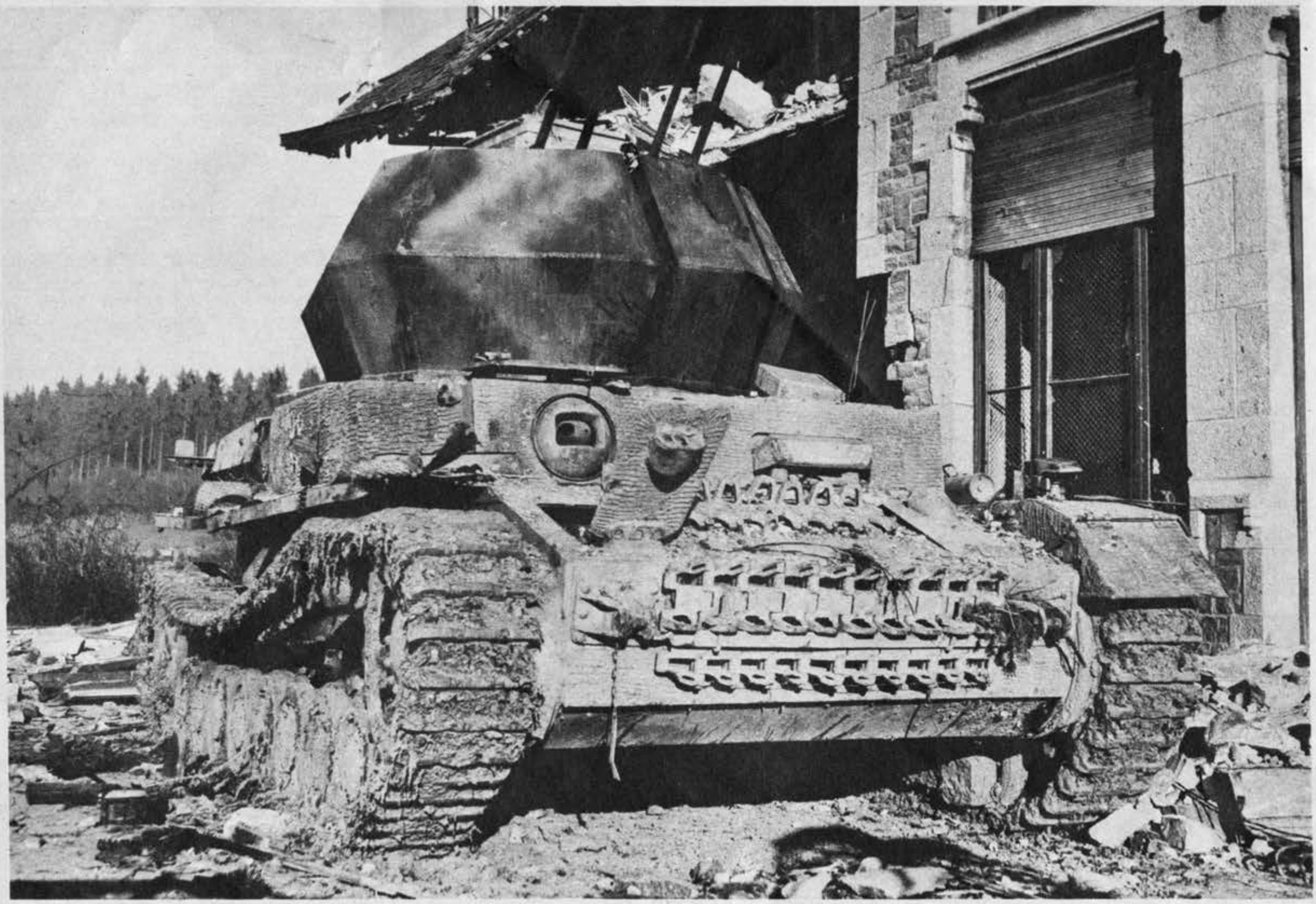
B-32

Consolidated-Vultee's Dominator is AAF's second superbomber

With an impressive battle record already behind the Superfortress, the new B-32 definitely establishes the era of the superbomber predicted by General Arnold in September 1943. Two such giants appearing within a year's time give the USAAF a commanding lead in this new phase of aerial warfare. With its span of 135 feet and 83-foot length, the B-32 is shorter each way than the B-29 but still deserves its proud name of Dominator. Four Wright Double Cyclone engines each develop 2,200 hp. and at high altitude produce a speed of over 350 m.p.h. Bomb load, armament or range cannot be revealed but all are worthy of a Very Heavy Bomber.

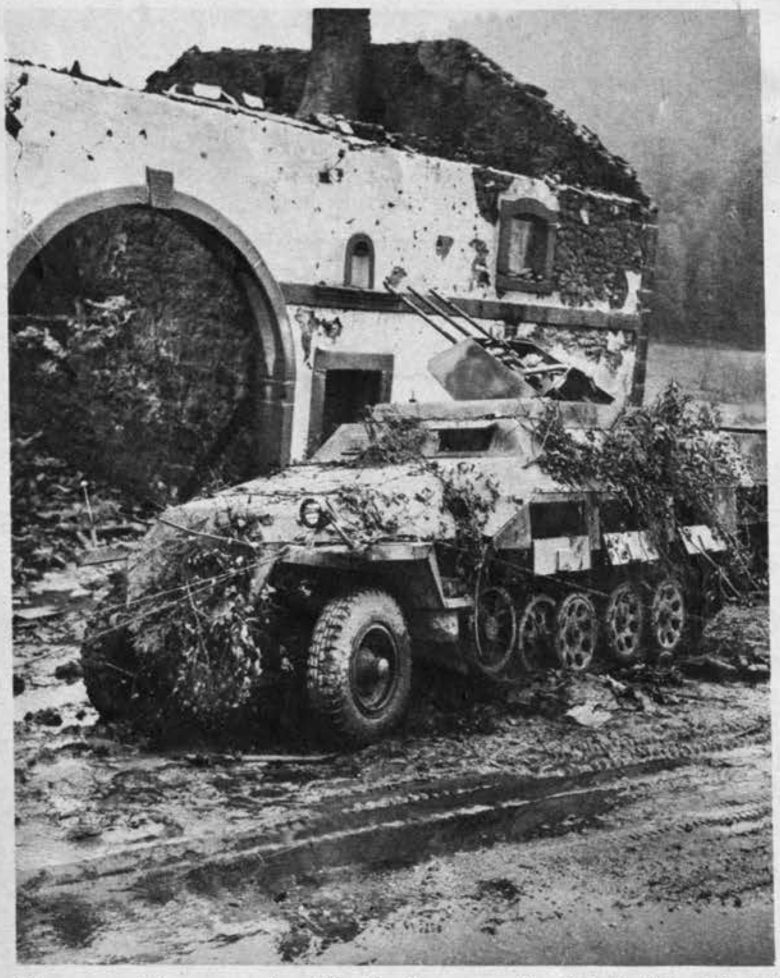
Designed by Consolidated-Vultee, the B-32 bears the same relationship to the B-24 as does Boeing's B-29 to the B-17. Though the B-32 suggests its Liberator ancestry in overall appearance, most major components are different. The Davis wing, long and narrow, has been retained but is set very high rather than in the B-24's shoulder position. The B-32's fuselage is cylindrical, while the B-24 has a deep flat-sided fuselage with a cigarlike taper in plan view. Most important difference is in the B-32's huge, saillike single fin and rudder. Resembling those already found on the PB4Y-2 and XB-24N, it is B-32's outstanding recognition feature.





NAZIS' NOVEL ANTIAIRCRAFT TANK CONSISTS OF FOUR 20-MM. CANNON IN A LARGE, MANY-SIDED TURRET WHICH IS MOUNTED ON A MARK IV CHASSIS

NEW VARIATIONS IN NAZI ARMOR



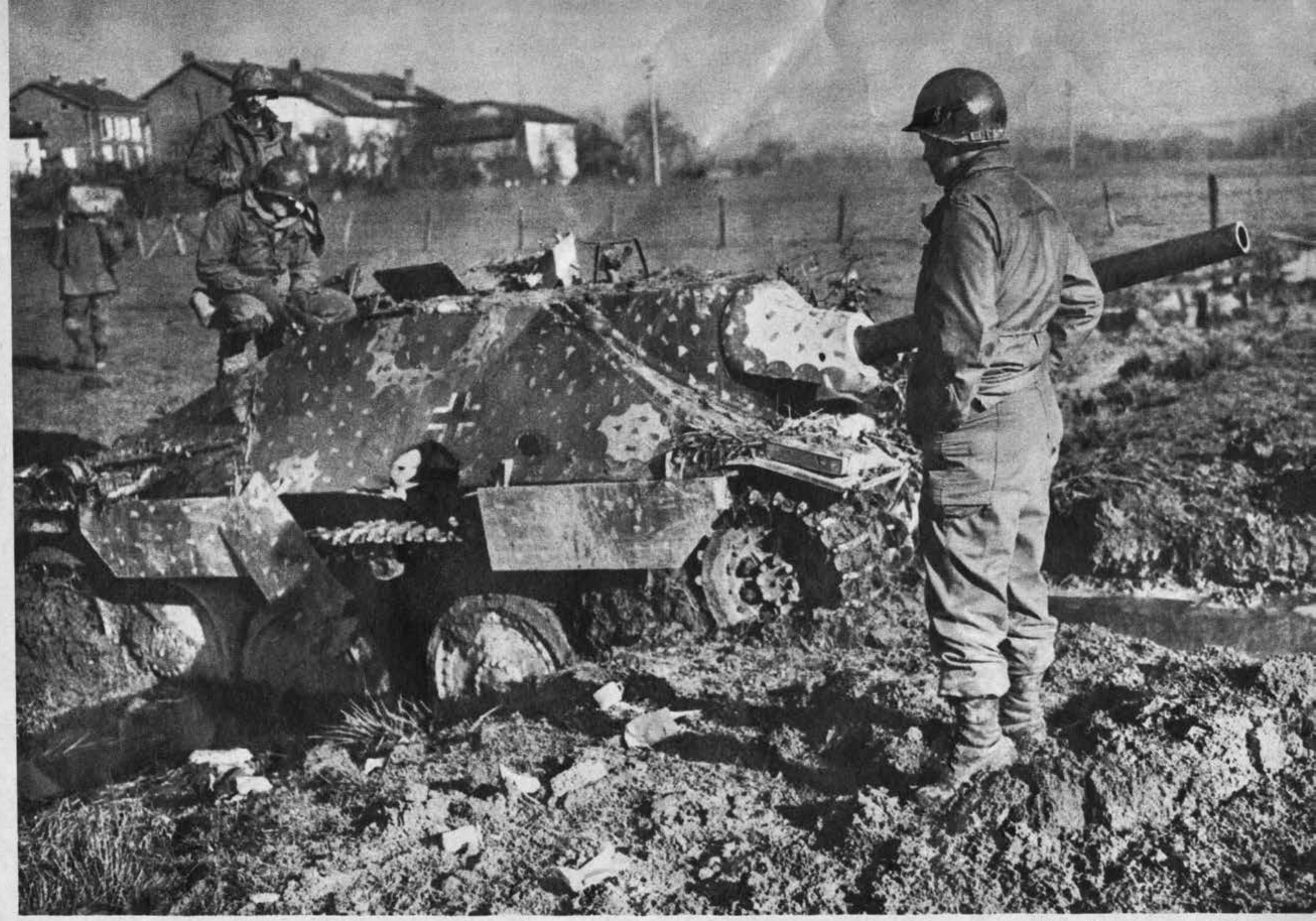
Three machine guns furnish the firepower for this half-track's AA mount, point forward in traveling position. The vehicle's suspension has a front sprocket, a large rear idler, six overlapping bogie wheels.

Germany's desperate need for quantity in her production of armored vehicles presents no insurmountable obstacle to Nazi designers. Further refinements on Nazi tanks, half-tracks and armored cars continue to appear as the Wehrmacht seeks every possible means to fight off Allied air and ground forces.

One interesting innovation is the heavy AA turret set on the PzKw IV chassis (*above*). Strafing evidently made things too hot for crews manning more open self-propelled AA mounts, with the result that the old Flakvierling's (AA quadruplet) 20-mm. cannon now have greatly increased protection.

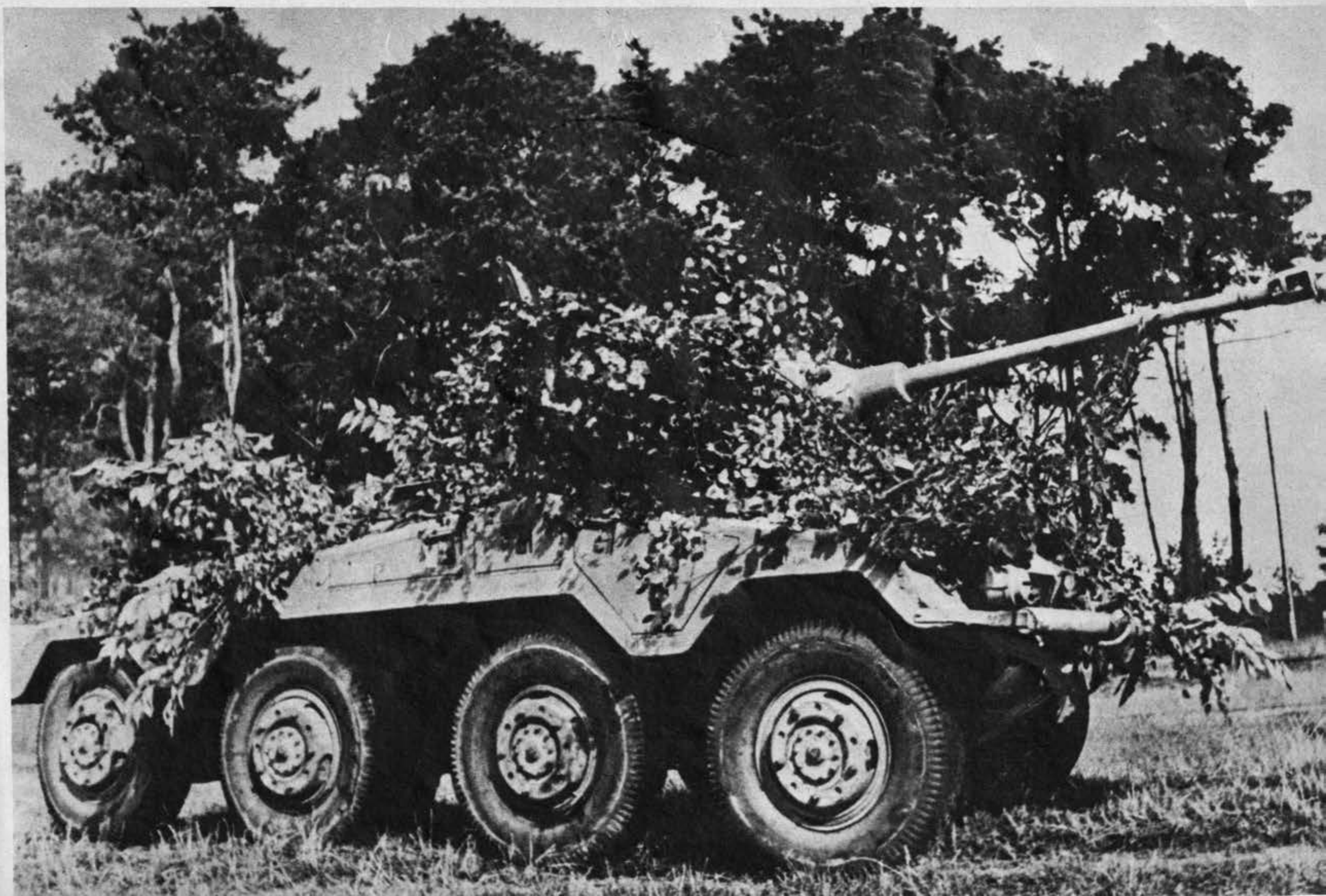
Already equipped with a variety of antiaircraft armament, Germany's 7.7-ton medium armored personnel carrier now has one more mount (*left*). By carrying three heavy machine guns rather than cannon, it differs from earlier German SP flak. Armored swivel mount has both horizontal and vertical traverse.

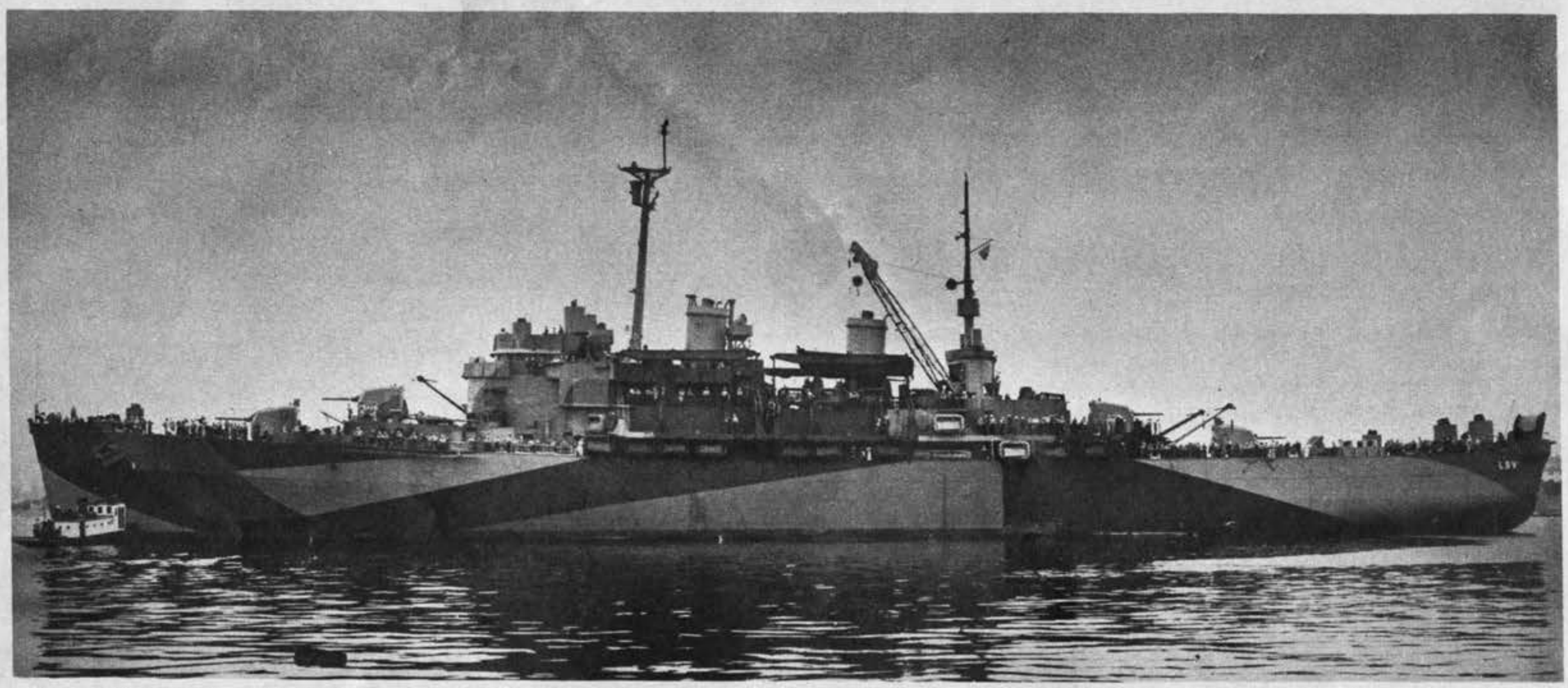
Two of the latest Nazi tank destroyers (*opposite*) are the combination of a 75-mm. gun and the Czech 38 chassis and a rebuilt eight-wheeled armored car with a high-velocity 50-mm. weapon. Previously serving as the carriage for antitank guns in tall shield mounts, the Czech chassis (*top right*) now has a low silhouette and built-in gun. The armored car (*bottom right*) has its original wheel mounting but the hull is now different, sloping down from turret to rear without any side cutaway.



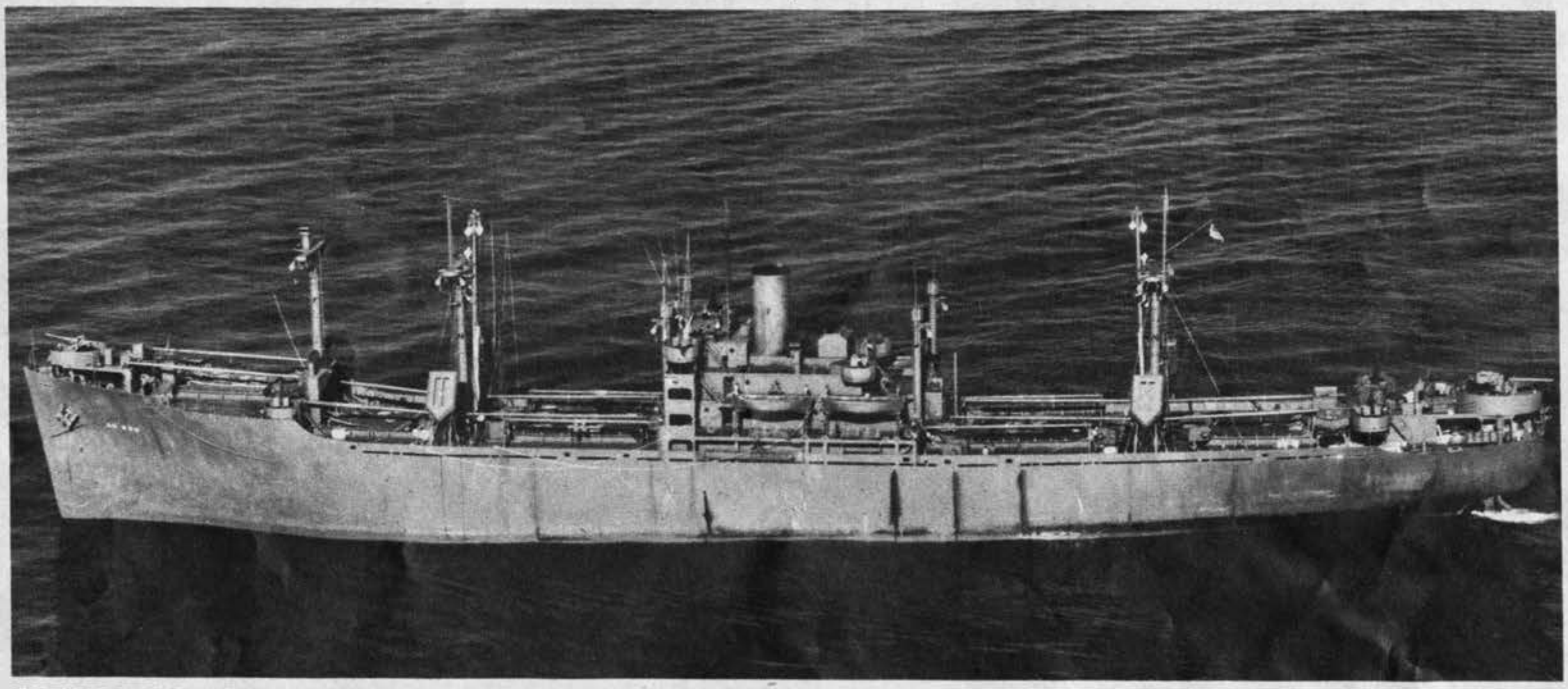
Nazi tank destroyer wrecked by a U. S. M-10 has wallowed to a muddy end. Four large bogie wheels identify the chassis as the Czech 38. A cast mantlet on the low fighting compartment protects the 75-mm. gun.

Eight-wheeled armored car *(below)* carries a long 50-mm. gun which protrudes well beyond the bow. The cupola's lid is visible above the camouflage. A V-12 diesel engine gives the car a 50-m.p.h. top speed.

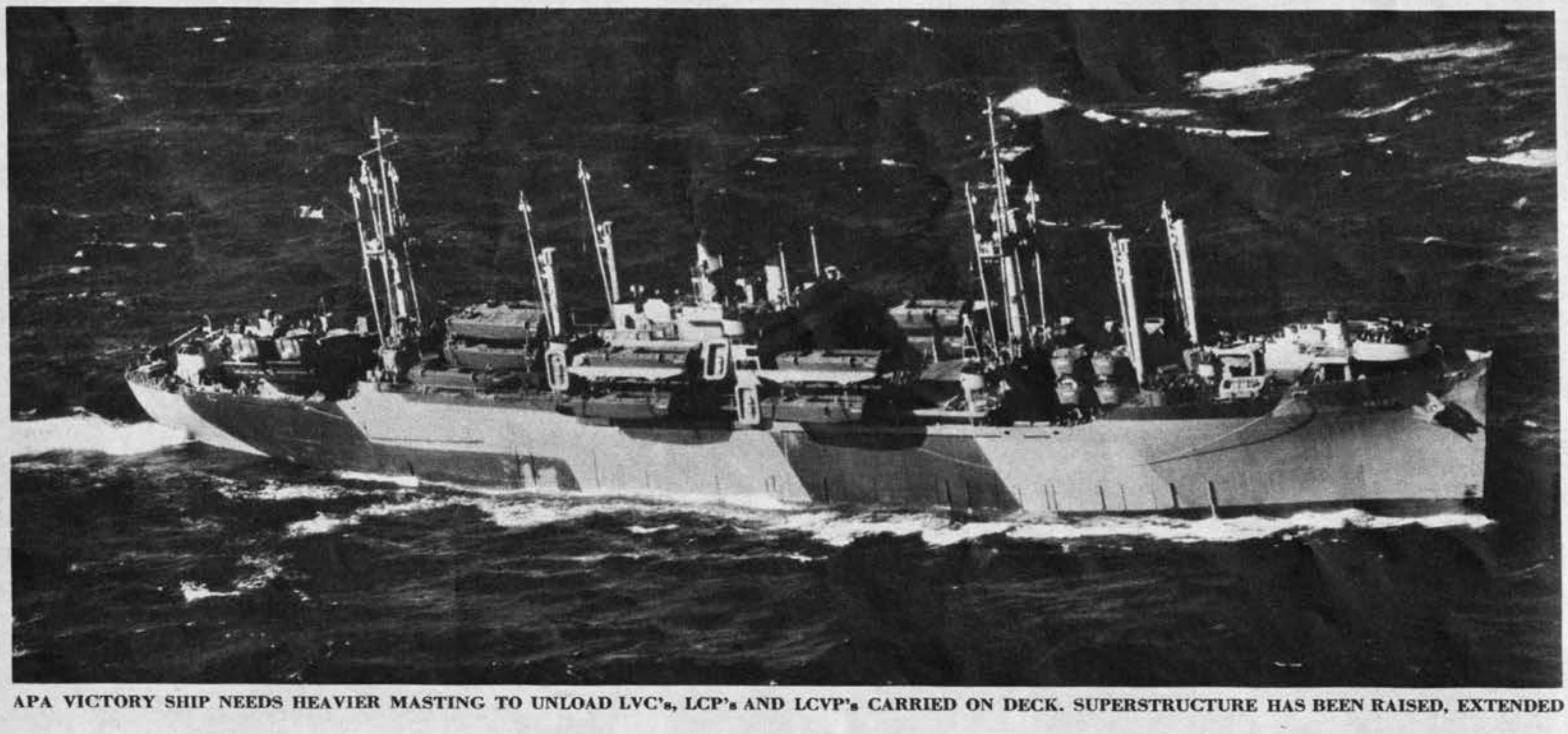




LSV CONVERTED FROM MINELAYER HAS TWO STACKS, TWO GUNHOUSES AFT. OTHERWISE IT RESEMBLES THE EX-NETLAYER LSV (OPPOSITE PAGE)



VICTORY SHIP IS LATEST PRODUCED UNDER USMC EMERGENCY PROGRAM. SPECIAL VERSION (BELOW) DOES MORE DIRECT MILITARY SERVICE AS APA



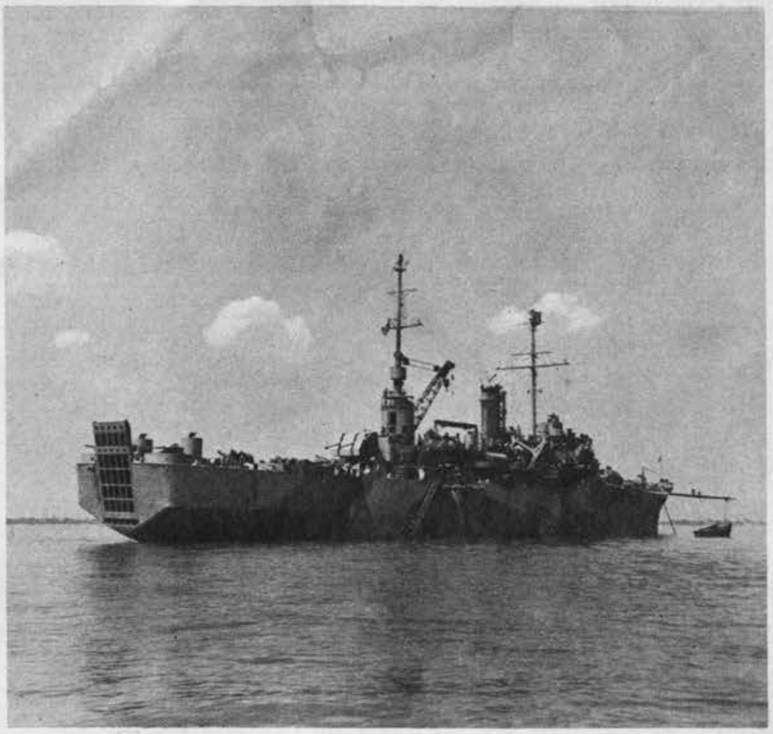
APA VICTORY SHIP NEEDS HEAVIER MASTING TO UNLOAD LVC's, LCP's AND LCVP's CARRIED ON DECK. SUPERSTRUCTURE HAS BEEN RAISED, EXTENDED

NEW ATTACK SHIPS

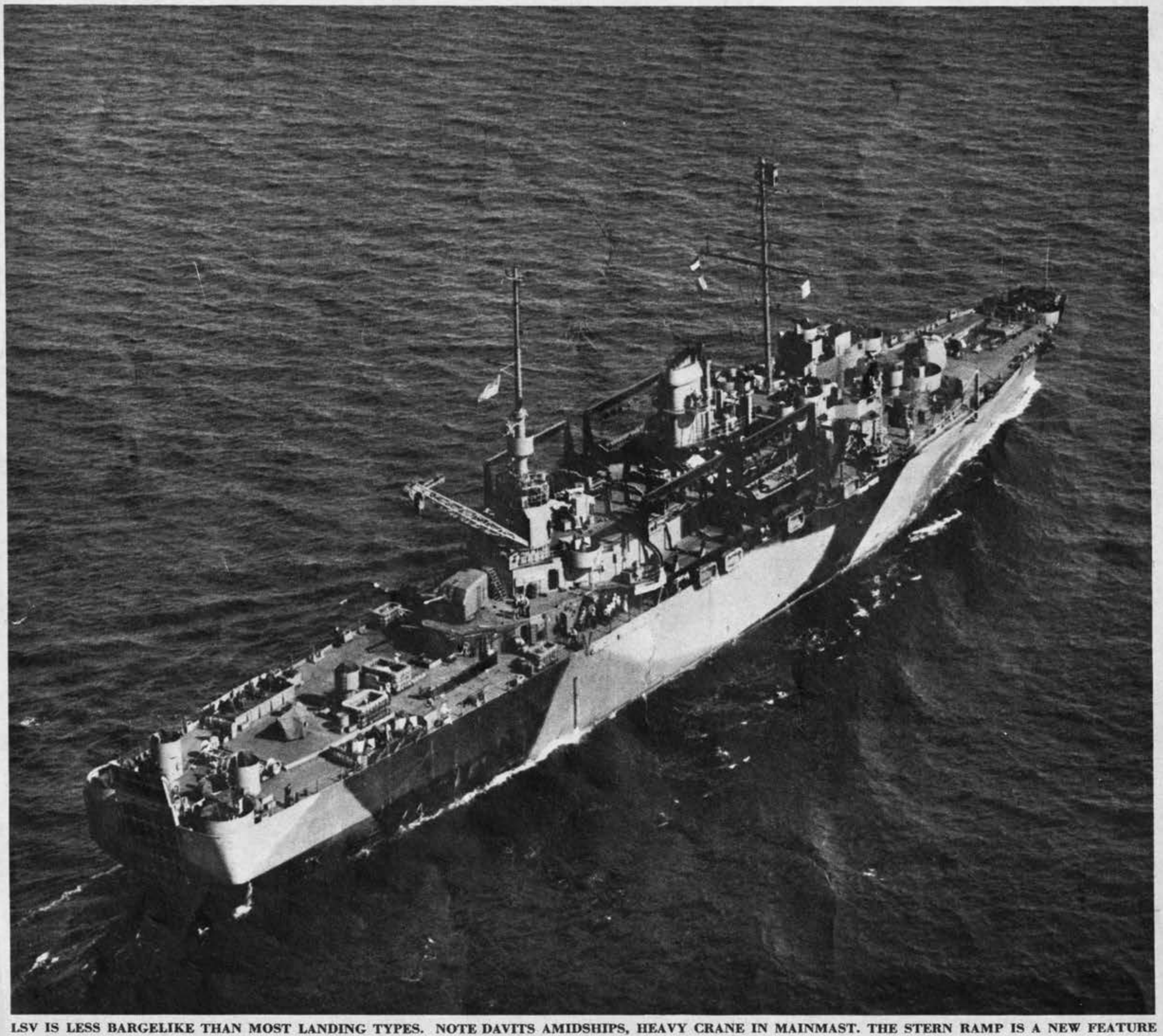
Amphibious attack is a relatively new military technique that is being steadily improved. Shown on these pages are two recent developments in landing matériel, the LSV (Landing Ship, Vehicle) and the Victory Ship APA (Attack Transport). Both are designed to carry more men and vehicles to battle than previous vessels and get them there as quickly as possible.

The 451-foot LSV exists in two versions: ex-netlayers (*right*) and converted minelayer (*left*). Latter version has two stacks, chief difference between the two. DUKW's, LCVP's, LVT's and SEEP's (quarter-ton amphibious trucks) are carried and unloaded over the side or floated out via the stern ramp.

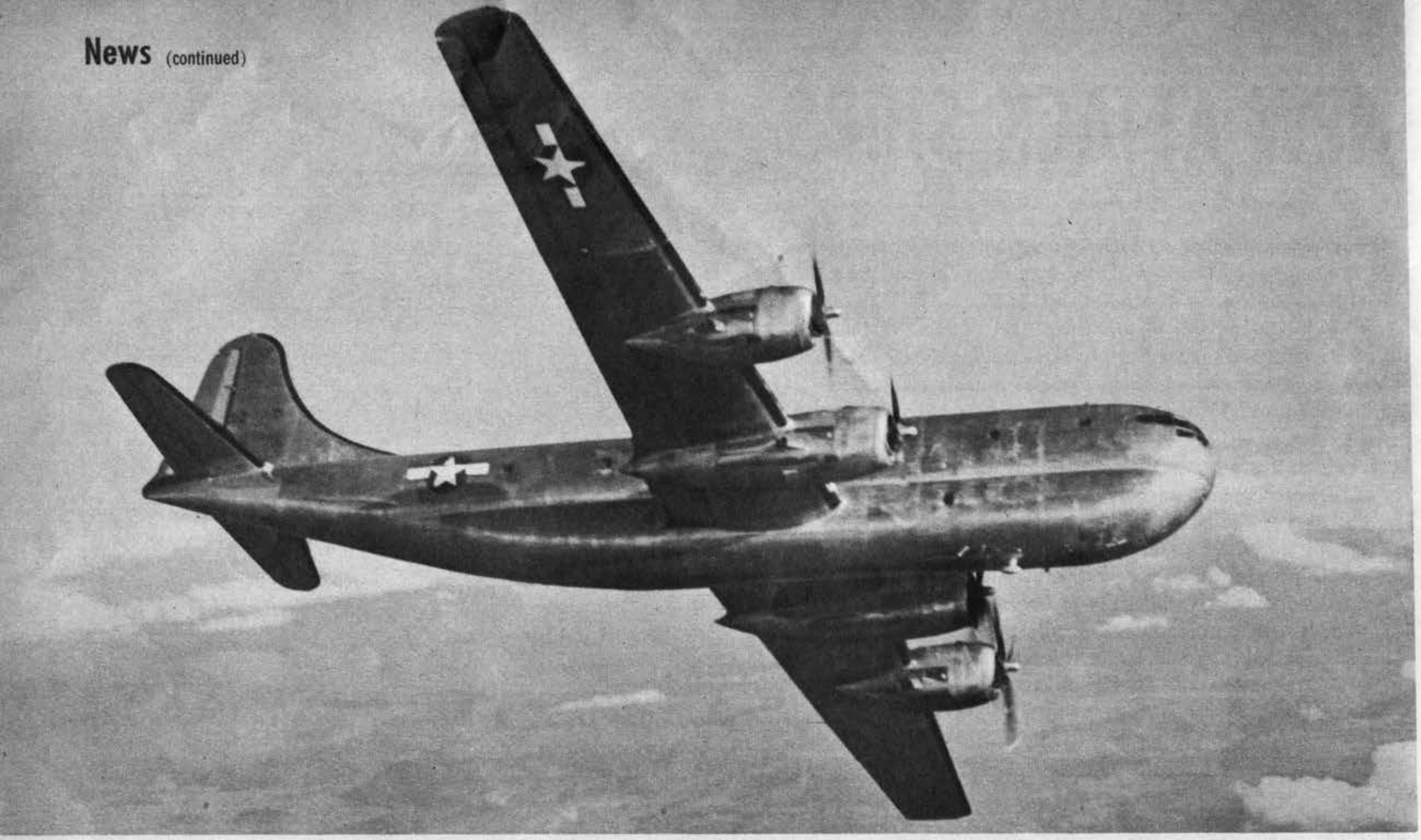
In contrast to the vehicle-carrying LSV, the converted Victory Ship (*two pictures, lower left*) serves as a floating base for assault troops. A bristling array of booms, kingposts and davits enables speedy unloading of smaller landing craft. LCVP's and Higgins boats are slung on the ship's davits or piled up in tiers on the deck while the bigger LCV's are carried endwise.



SINGLE-STACK LSV HAS NOVEL UNLOADING RAMP IN FLATTENED STERN



LSV IS LESS BARGELIKE THAN MOST LANDING TYPES. NOTE DAVITS AMIDSHIPS, HEAVY CRANE IN MAINMAST. THE STERN RAMP IS A NEW FEATURE



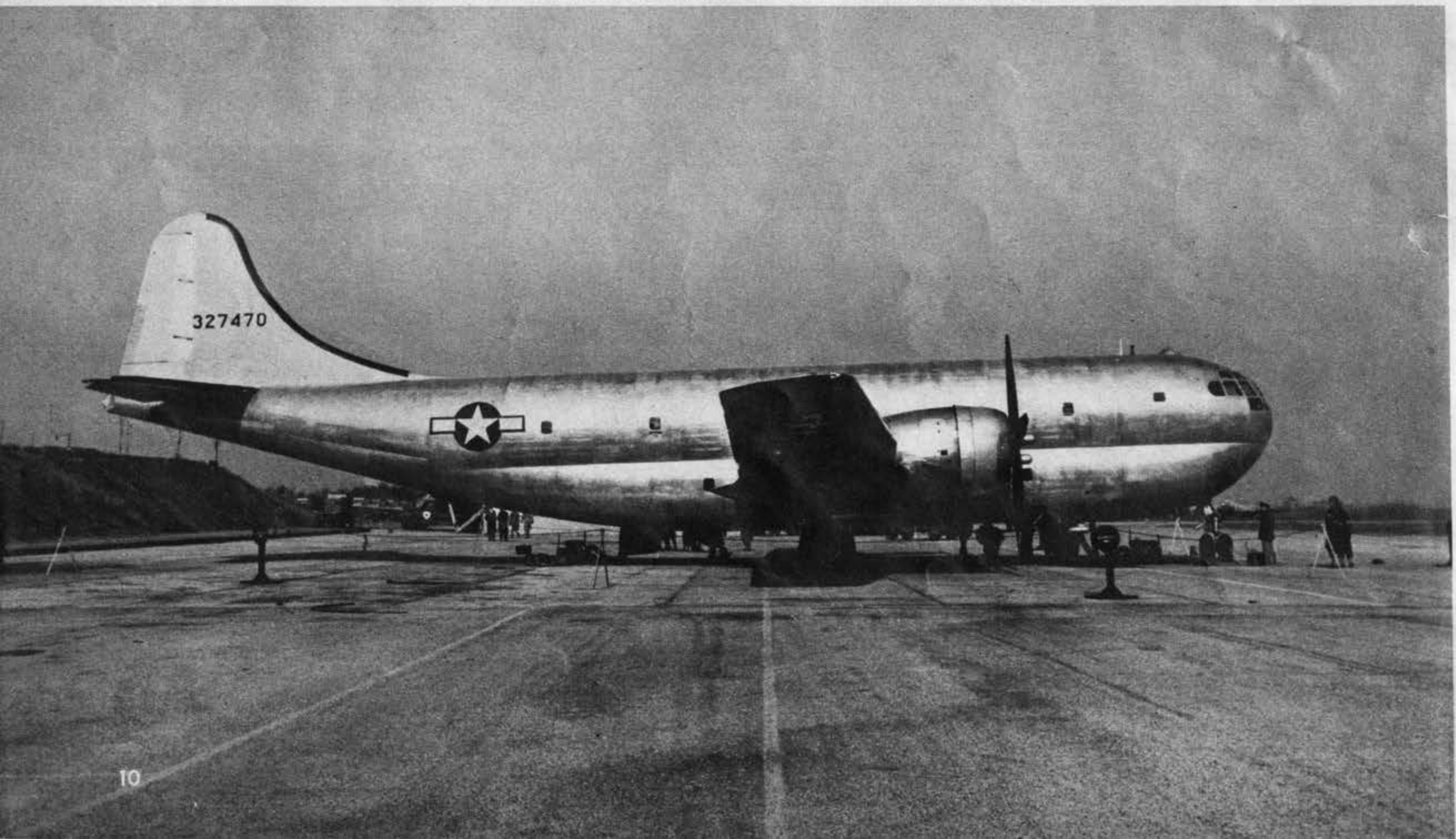
BULBOUS DOUBLE-DECK FUSELAGE GIVES THE C-97 GREATEST CAPACITY OF ANY U. S. CARGO PLANE. NACELLES AND WING ARE THE SAME AS ON B-29

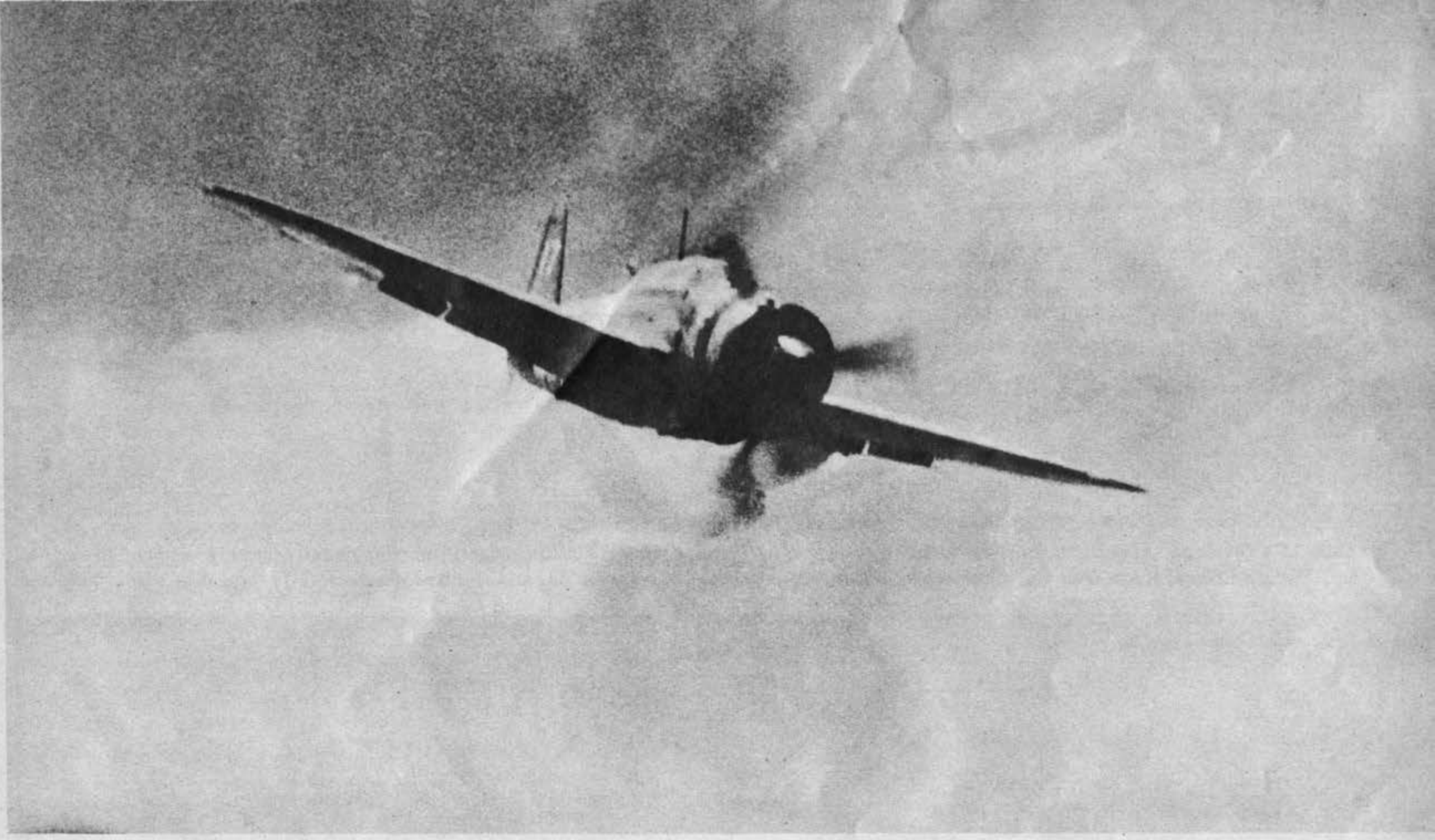
BULKY C-97 IS AAF'S BIGGEST

Taking advantage of the B-29's enormous power and efficient wing, Boeing engineers have designed a huge cargo plane, the C-97. Able to carry about 125 soldiers 2,000 miles in less than ten hours, the C-97 foreshadows further developments in airborne attack.

Complementing C-97's enormous capacity is an unusual loading system. A ramp, which enables vehicles to drive through the cargo doors located under the upswept tail, can be folded and carried along for unloading. A monorail complete with a power hoist is built under the cabin roof to load heavy gear brought up in trucks.

THE C-97's FUSELAGE IS MORE THAN 110 FT. LONG, TWELVE LONGER THAN B-29's. A COMMERCIAL VERSION IS EXPECTED TO HAVE 3,500-HP. ENGINES





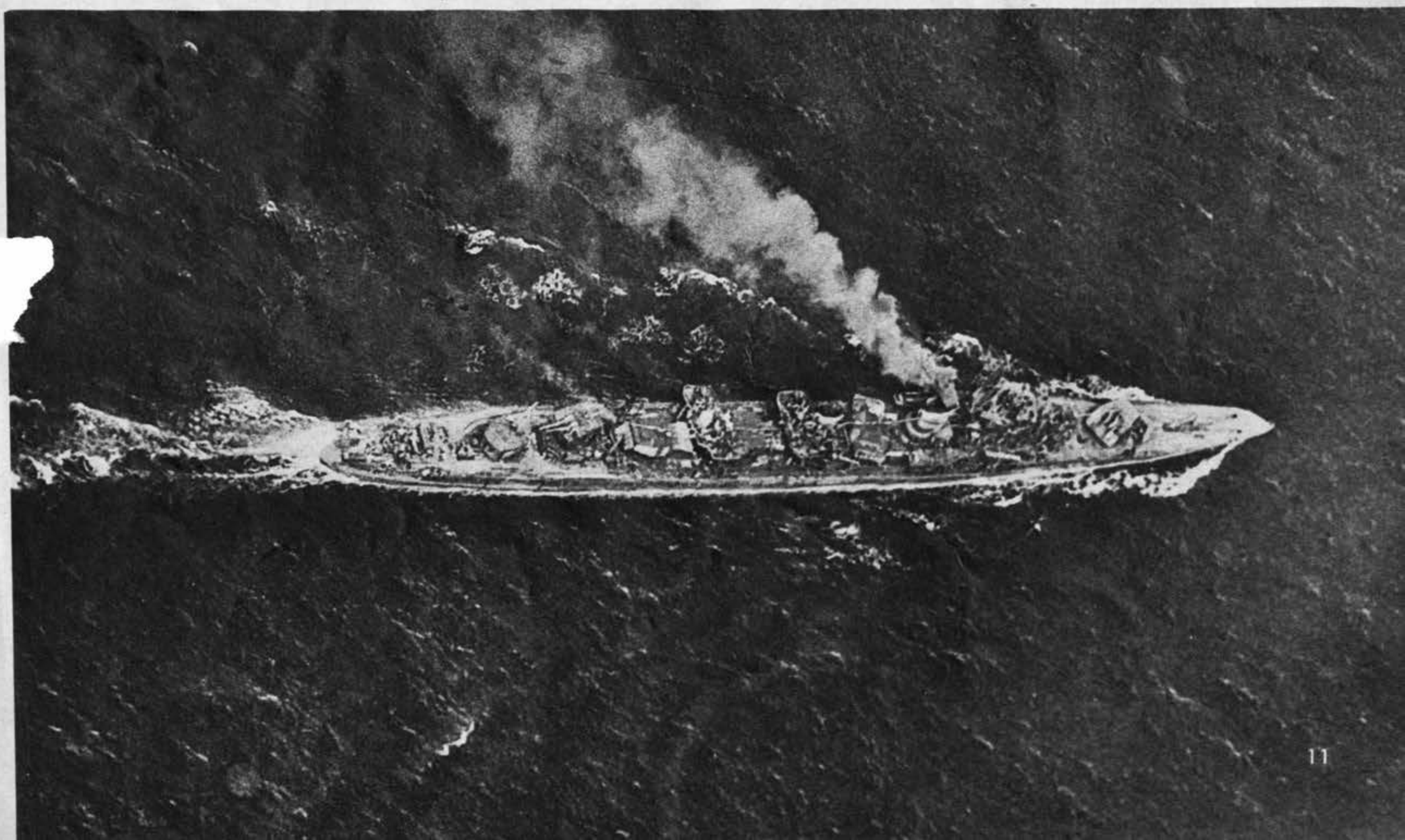
A RADIAL ENGINE FAILS TO DISGUISE JAP DIVEBOMBER JUDY WITH ITS LOW MID-WING AND RAISED CANOPY WHICH CURVES DOWN AT THE REAR

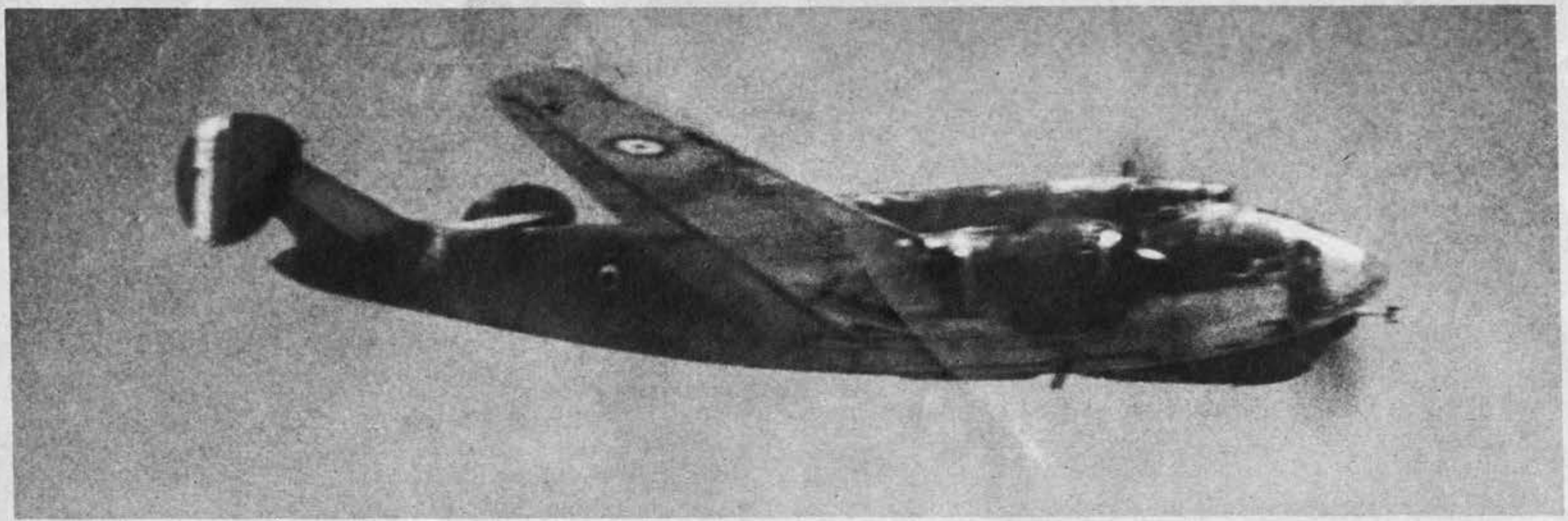
MODIFIED JUDY AND NEW JAP DD

A changed Judy powered by a radial engine was recently shot down and a clear picture of the plane (*above*) was taken just before it crashed. By replacing Judy's inline power plant, the Japanese will get a less vulnerable airplane although the round nose may cut its speed.

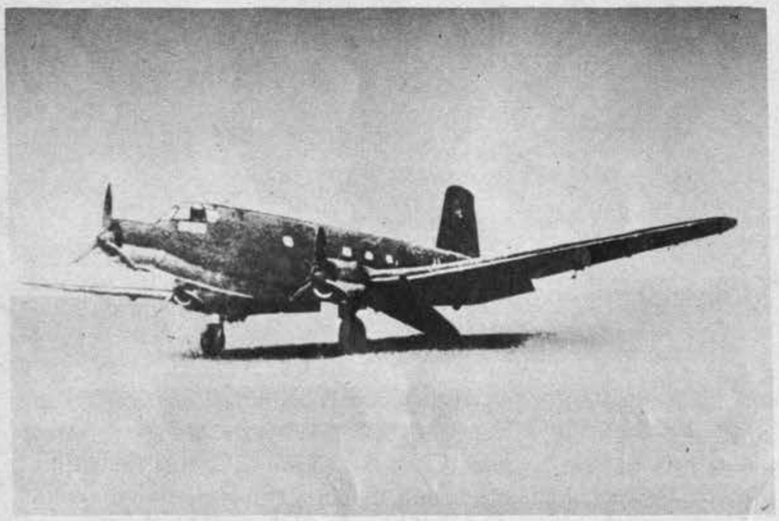
Flying near Ormoc Bay, Leyte, U. S. airmen got their first photo of a new Shimakaze Class DD (*below*). Closely resembling other Jap modern two-stackers in overall design, Shimakazes carry 15 tubes in quintuple mounts. This is the heaviest torpedo armament yet seen on a Jap destroyer.

SHIMAKAZE CLASS DD's ARE ABOUT 415 FT. LONG, CARRY SIX 5-IN. GUNS. TRIPOD MASTS AND HEAVY FORESTACK FOLLOW THE USUAL JAP PATTERN

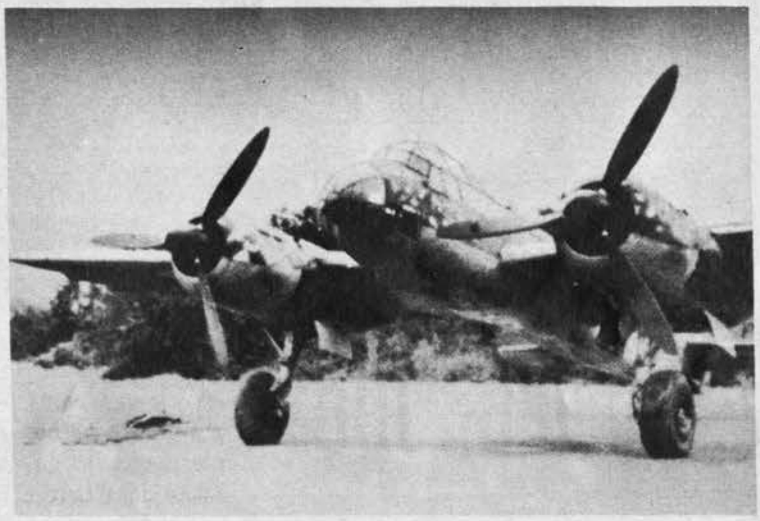




LeO-45's fuselage curves gracefully between the pointed nose and tail. Wing's dihedral stems from the roots and taper is even on the leading and trailing edges. Unorthodox tail assembly has marked dihedral and twin fins and rudders which seem to hang down from tailplane.



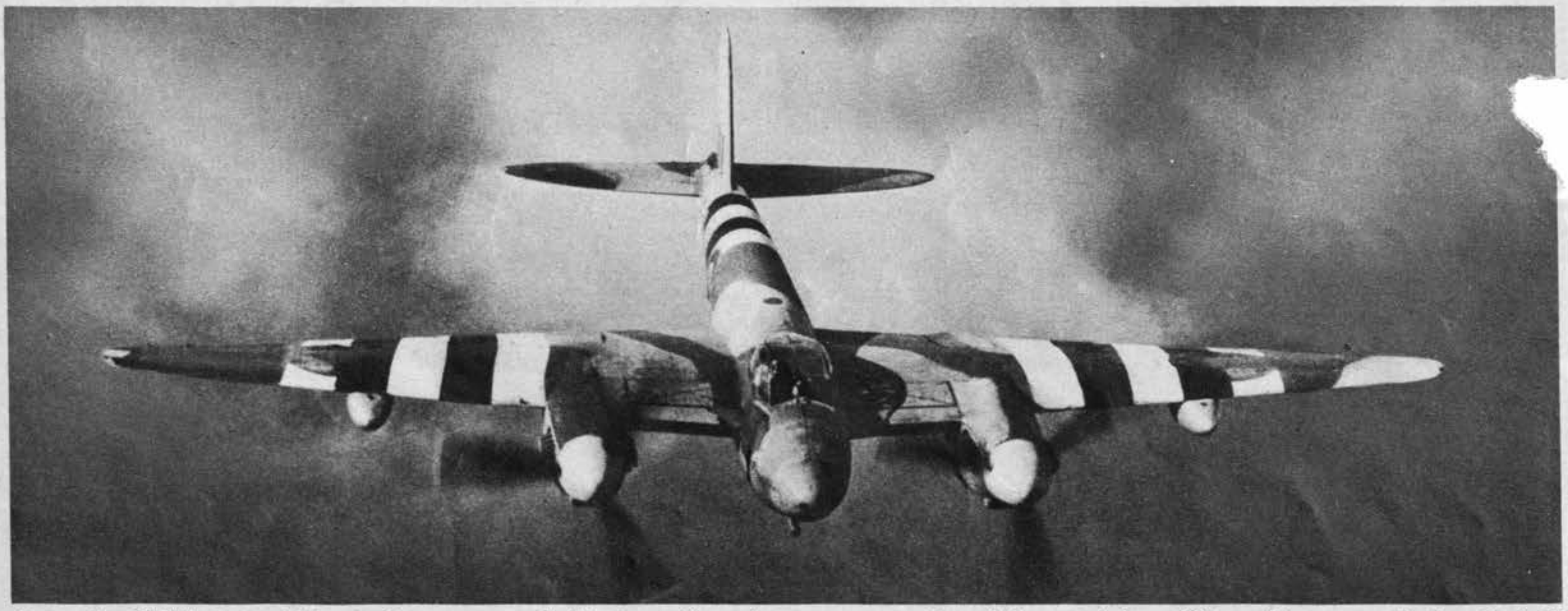
Ungainly snout, which mounts middle engine, should make Ju-352 easy to spot. Note angular fin and rudder and ramp under the belly.



Latest Ju-88 development, the S, has a smoothly glassed-in nose. Nacelles housing radial engines are same as on fighters Ju-88C, G.

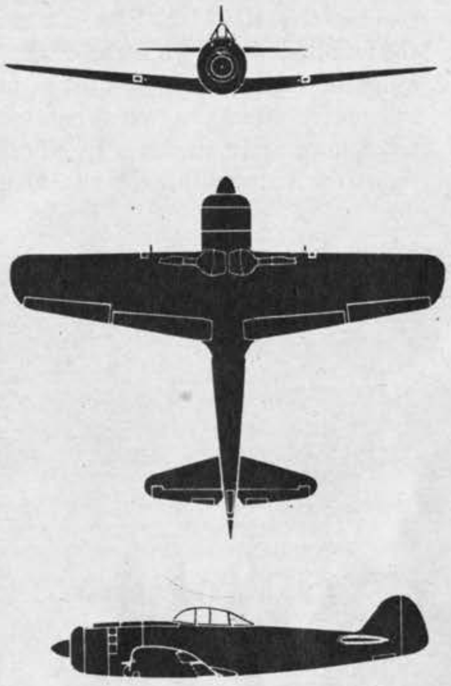
ALLIED & AXIS AIRCRAFT NEWS

Back in French service is the Liore-et-Olivier 45 (*top*), now being used as a trainer. Popularly known as LeO-45, it had limited use by the Nazis as a transport. Luftwaffe developments include Ju-88S, first bomber version of Ju-88 to have a slender rounded nose and the Ju-352, first of the greatly enlarged descendants of the Ju-52 transport to become operational. Used as an antishipping weapon by the RAF's Coastal Command is the Mosquito XVIII with its 57-mm. six-pounder mounted under nose.



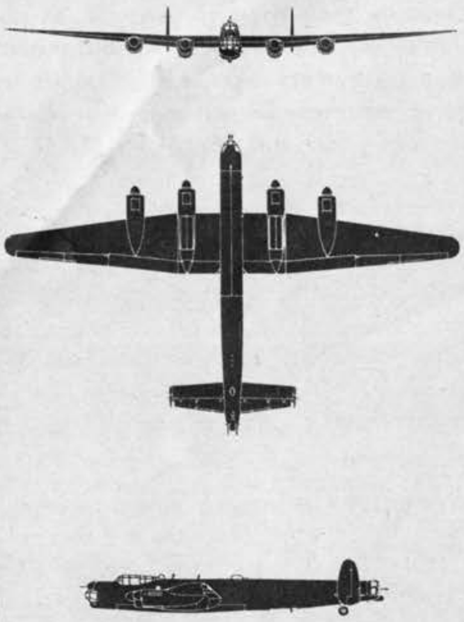
Mosquito XVIII's are striking at German coastal shipping with a six-pounder cannon (57-mm.) installed in a solid nose. Additional armament consists of the usual four .303 machine guns. Fuel tanks half way between the nacelles and wingtips add to the Mosquito's range.

NEW AND REVISED AIRPLANE SILHOUETTES



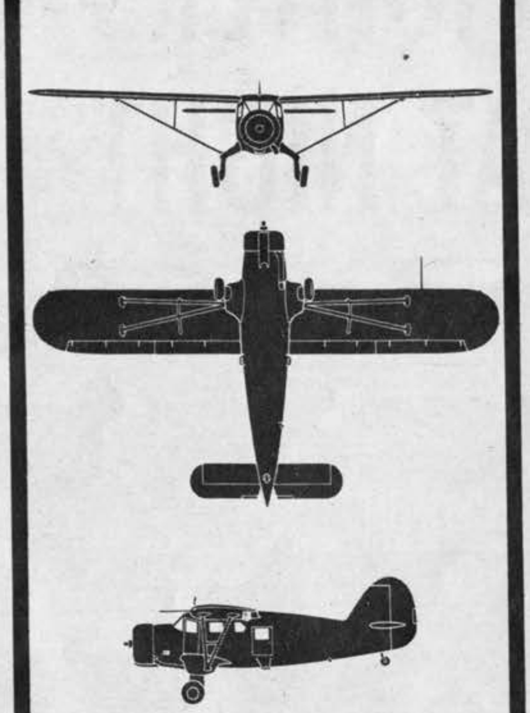
FRANK 1

SPAN 37 FT. 1 IN. LENGTH 32 FT. 3 IN.
JAP FIGHTER'S NEW TAIL (PROVISIONAL)



LINCOLN 1

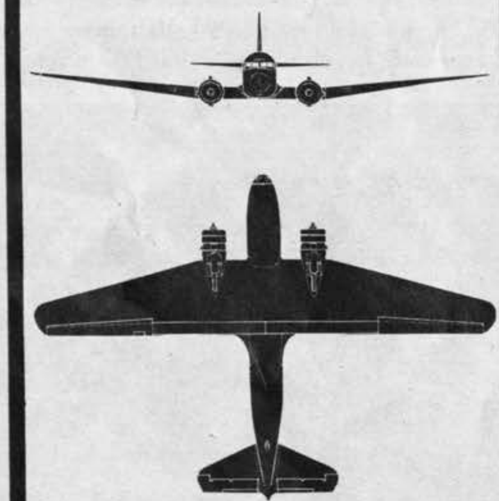
SPAN 120 FT. LENGTH 78 FT. 6 IN.
NEW RAF BOMBER RESEMBLES LANCASTER



UC-64

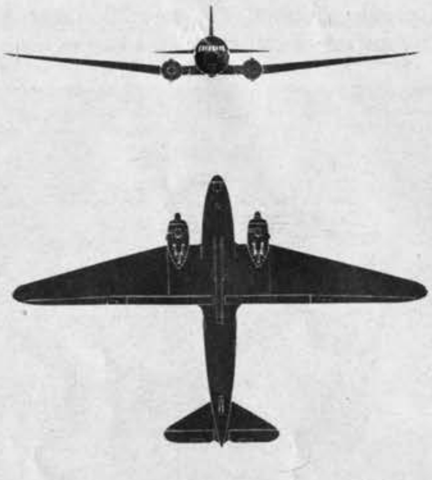
SPAN 51 FT. 6 IN. LENGTH 32 FT.
ALLIED CARGO, COMMUNICATIONS PLANE

New silhouette of Frank shows an Oscar-type wing, Tojo fuselage and modified Tojo fin and rudder (*see p. 48*). First British heavy bomber since the Lancaster is its development, the Avro Lincoln. The new plane looks quite similar although considerably larger. The UC-64 Norseman is being used overseas as a light cargo carrier, may have floats in place of the fixed undercarriage.



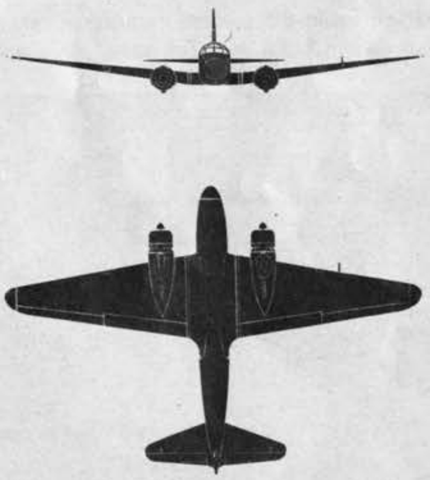
TESS 11

SPAN 85 FT. LENGTH 62 FT.
JAPANESE VERSION OF DOUGLAS DC-2



TABBY 32

SPAN 95 FT. LENGTH 64 FT. 7 IN.
JAPANESE VERSION OF THE DOUGLAS DC-3



TOPSY 1

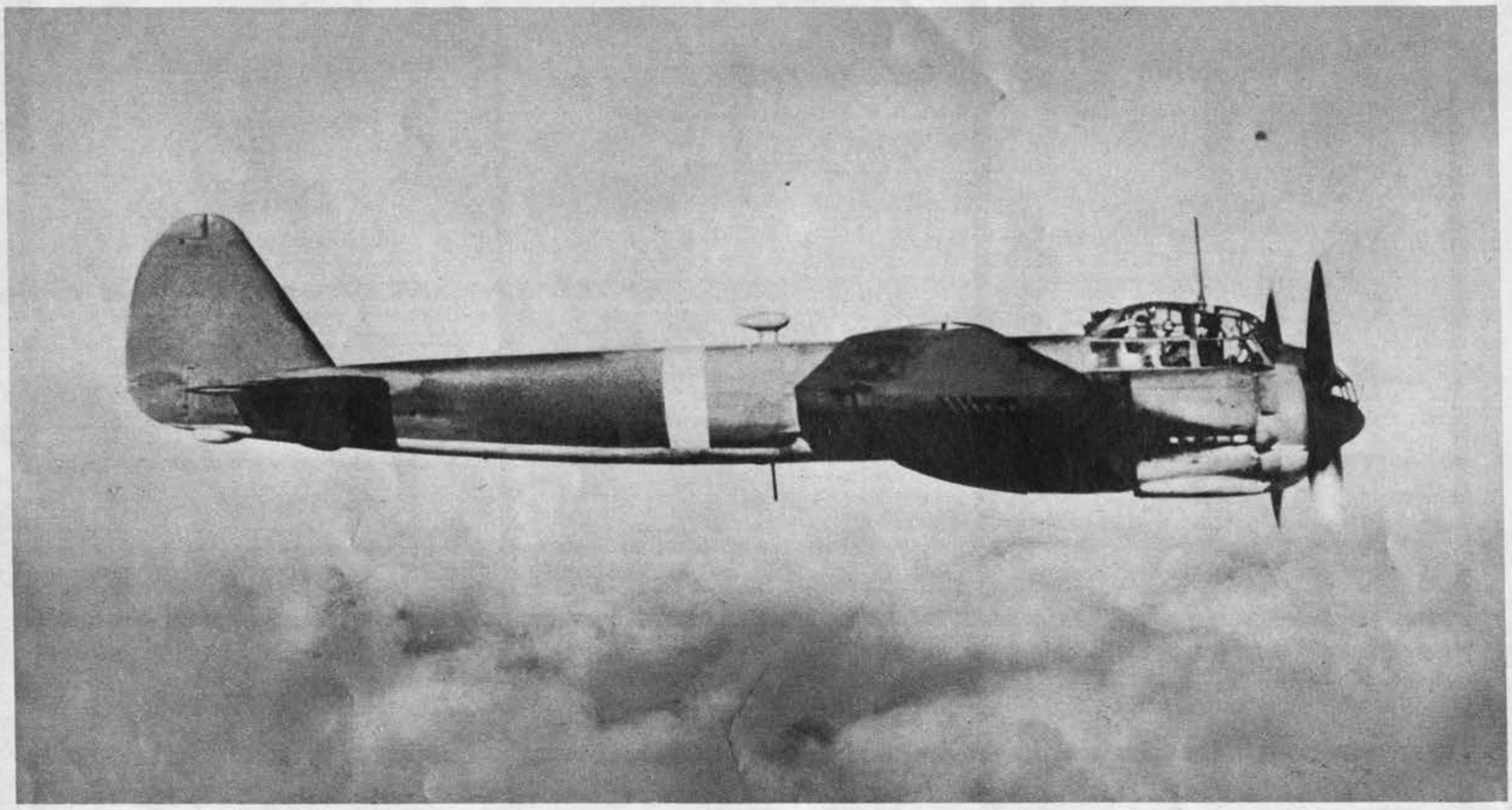
SPAN 74 FT. 2 IN. LENGTH 52 FT. 10 IN.
IMPROVED DRAWING OF JAP TRANSPORT

Transport planes will probably become more important for the Japs as more of their troops are cut off in the Philippines. Two of their important Navy transports are Tess and Tabby, virtual replicas of U.S. designs. Tabby, unlike Tess, has the faired fin of the C-47 but has larger spinners and a more pointed tail. Topsy, an Army plane, is smaller than the other two, has a different wing.

FIGHTERS AT NIGHT

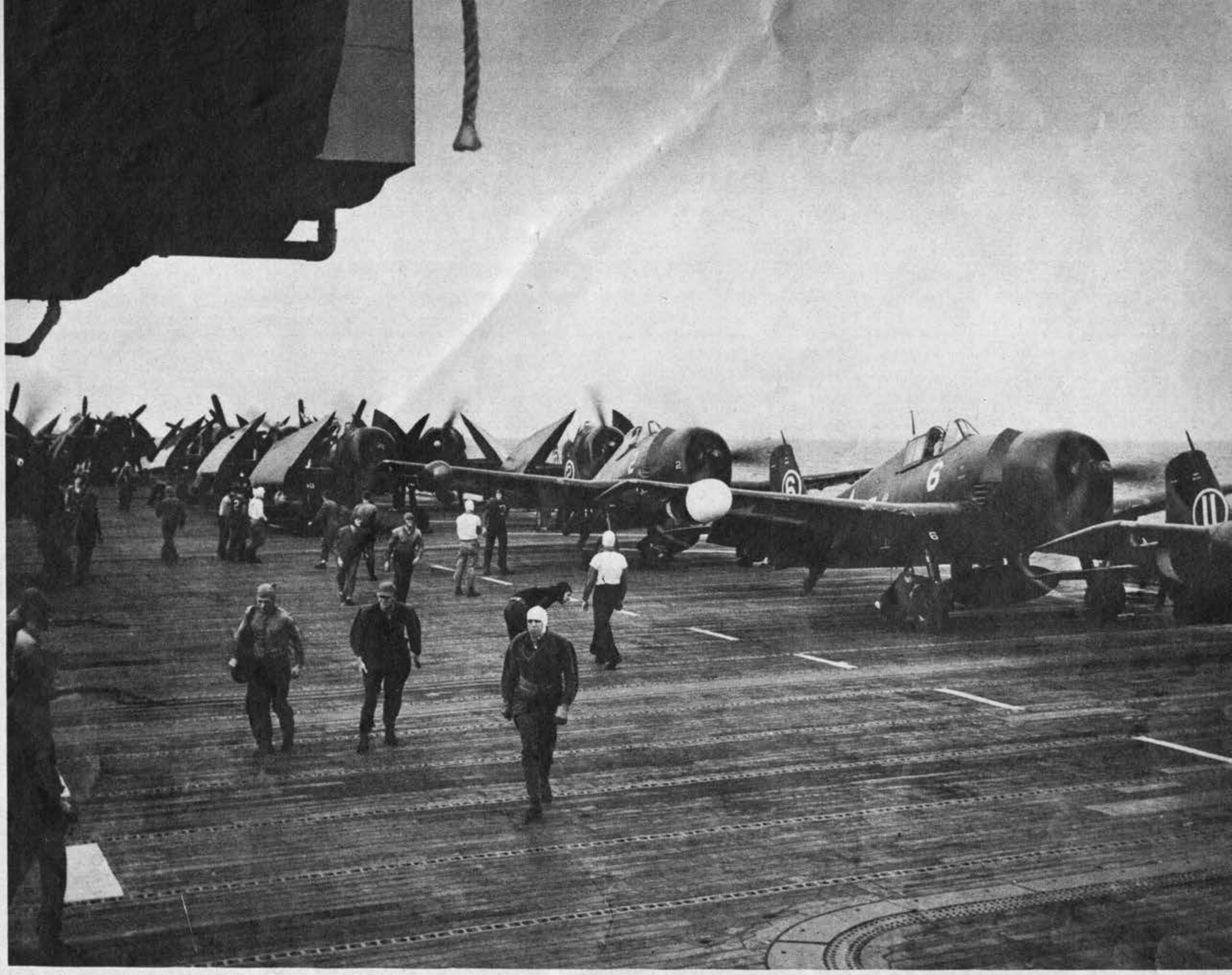
Nightfighting demands specially equipped aircraft. Bulky radar must be carried to locate the target, while actual contact is a split-second affair calling for precise shooting. Thus the nightfighter must not only be a stable gun platform but mount enough firepower to make short bursts decisive. All these factors suggest a heavy, two-man plane and, except for the U. S. Navy and the Luftwaffe, major air forces employ nothing but twin-engine types.

Most nightfighters are adaptations of familiar aircraft; U. S. P-61 (*see cover*) is the first built solely for night work. As the scope of nightfighting widens to include "intruder" attacks as well as defensive interception, more airplanes specifically designed for nightfighting can be anticipated.



Nightfighter Ju-88 retains familiar "dragon fly" profile of bomber (*shown above*) but has solid nose. Main armament consists of either two 20-mm. cannon in the nose and four in a belly fairing, or four 20's in the nose and two more cannon firing upward from fuselage.

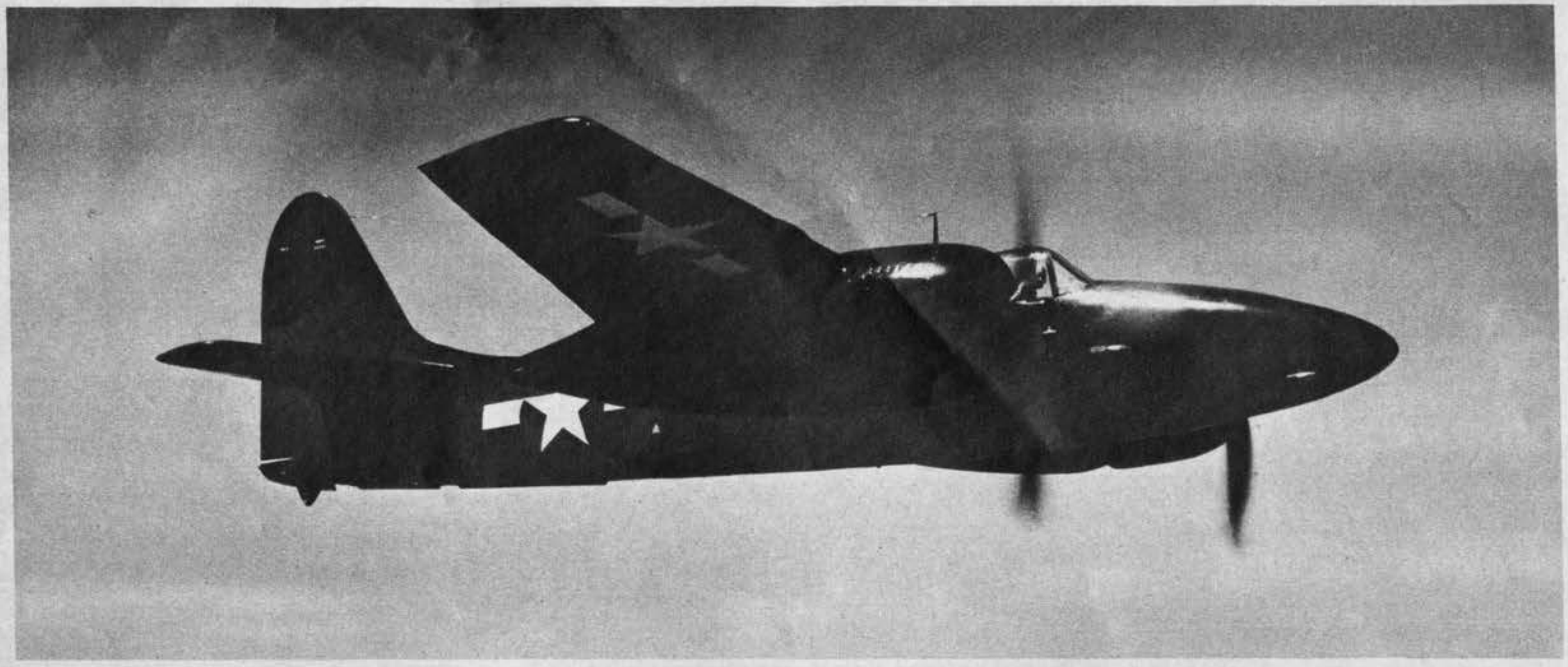
Intruder Mosquitoes prepare to take off for Germany. A powerful offensive weapon, the Mosquito has replaced Beaufighter as principal RAF nightfighter. With its four cannon and four machine guns in the nose, the Mosquito is a good example of nightfighter armament.



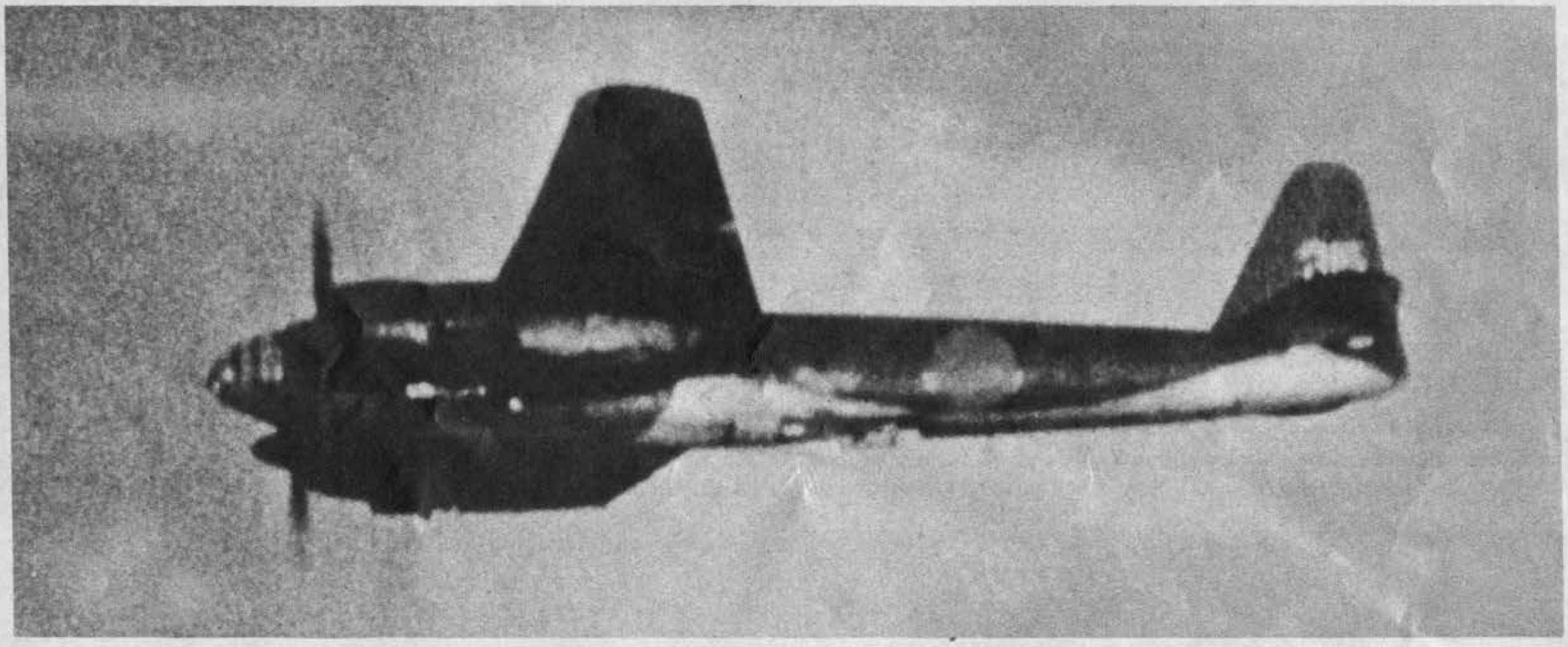
U. S. Navy uses single-engine fighters (F6F, F4U) for nightfighting. Night-flying Hellcats (*shown above*) have black paint job, streamlined radome on the starboard wing. Operating both from land and carrier bases, F6F's have high rate of climb even with heavy radar equipment.

Jet-black A-20 has flown for Britain's RAF as Havoc nightfighter, for USAAF as P-70 Nighthawk. Four cannon are mounted in solid nose.

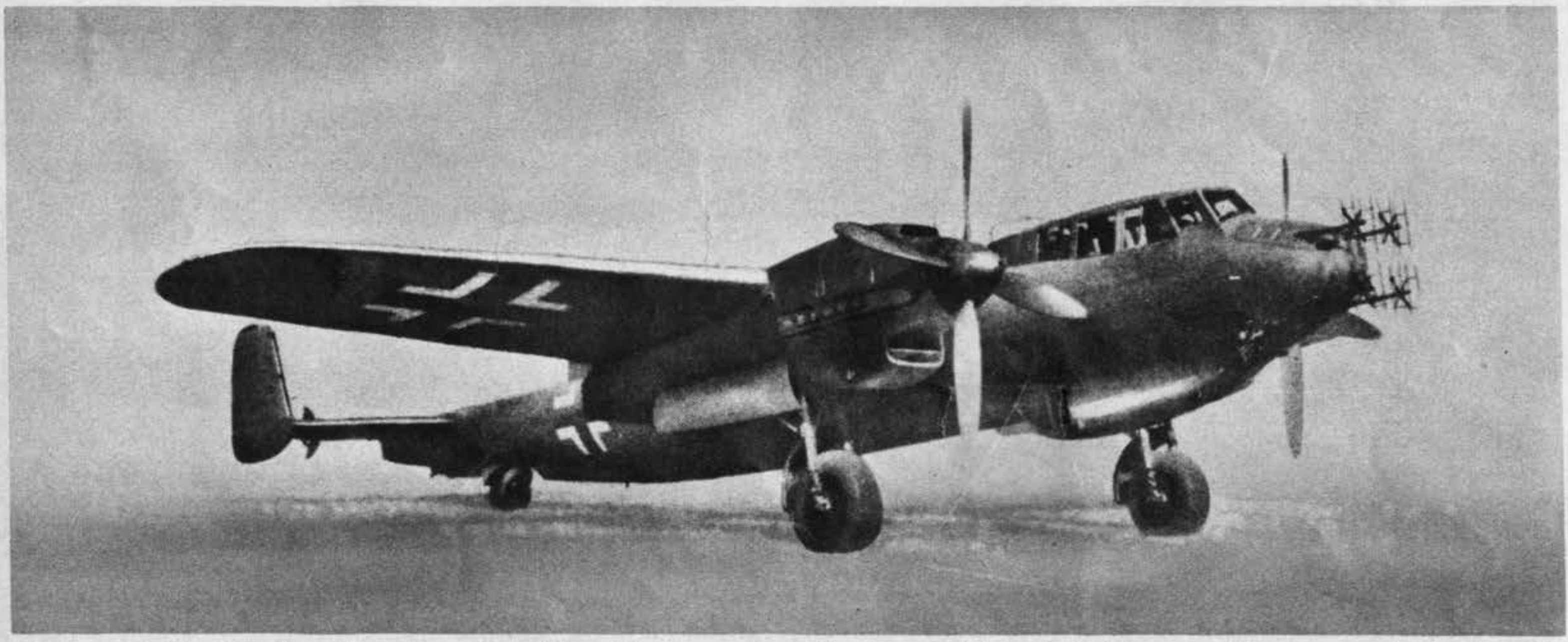
Nocturnal Beaufighter, RAF's versatile veteran, mounts four cannon in abbreviated nose. Six wing guns are unusual for nightfighter.



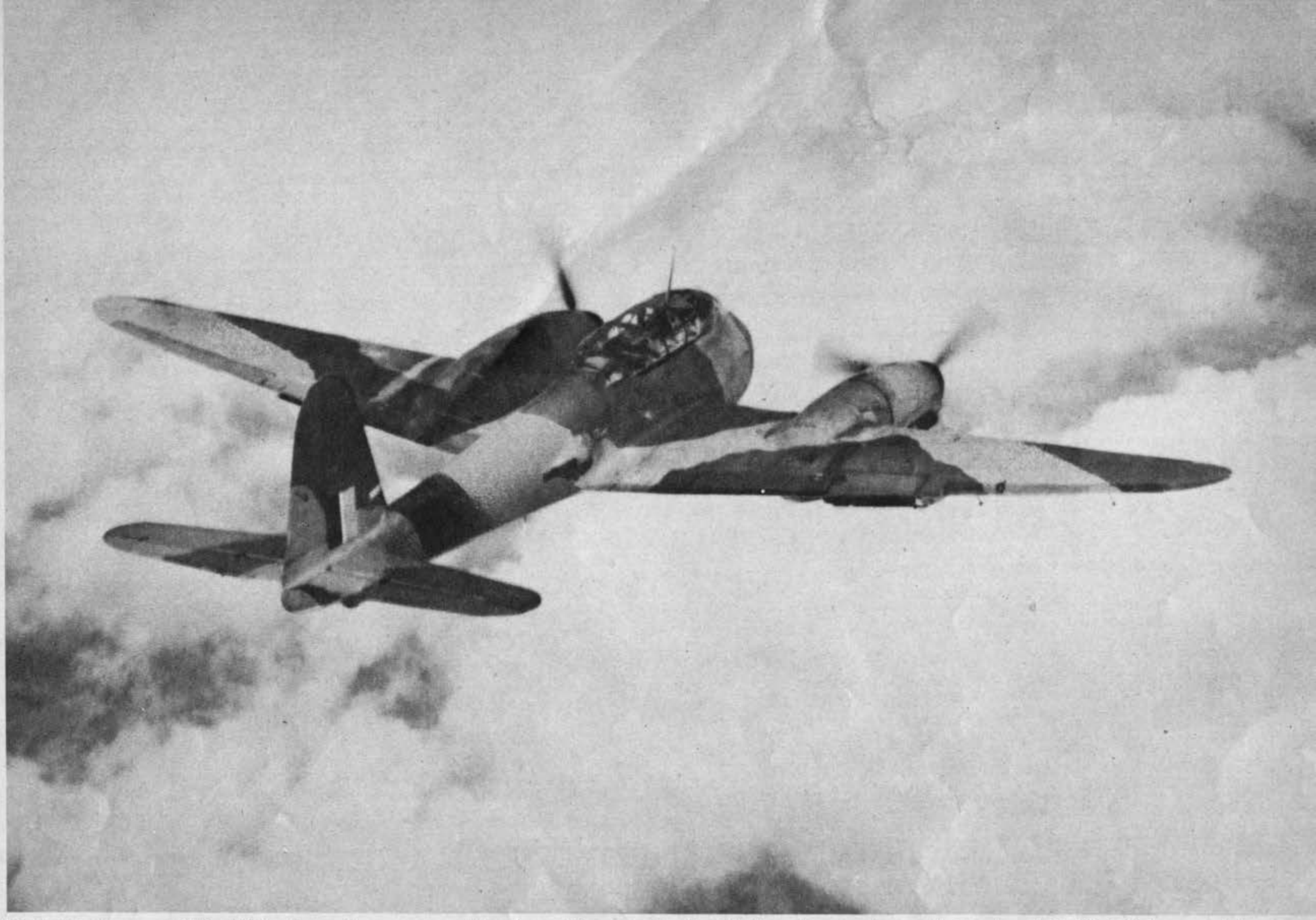
Square-cut wing and tailplane are dramatic contrast with the fishlike curves of the F7F's fuselage. Grumman's first operational twin-engine design, the F7F Tigercat will fly as both night and day fighter from Navy and Marine bases. Its armament has not been revealed as yet.



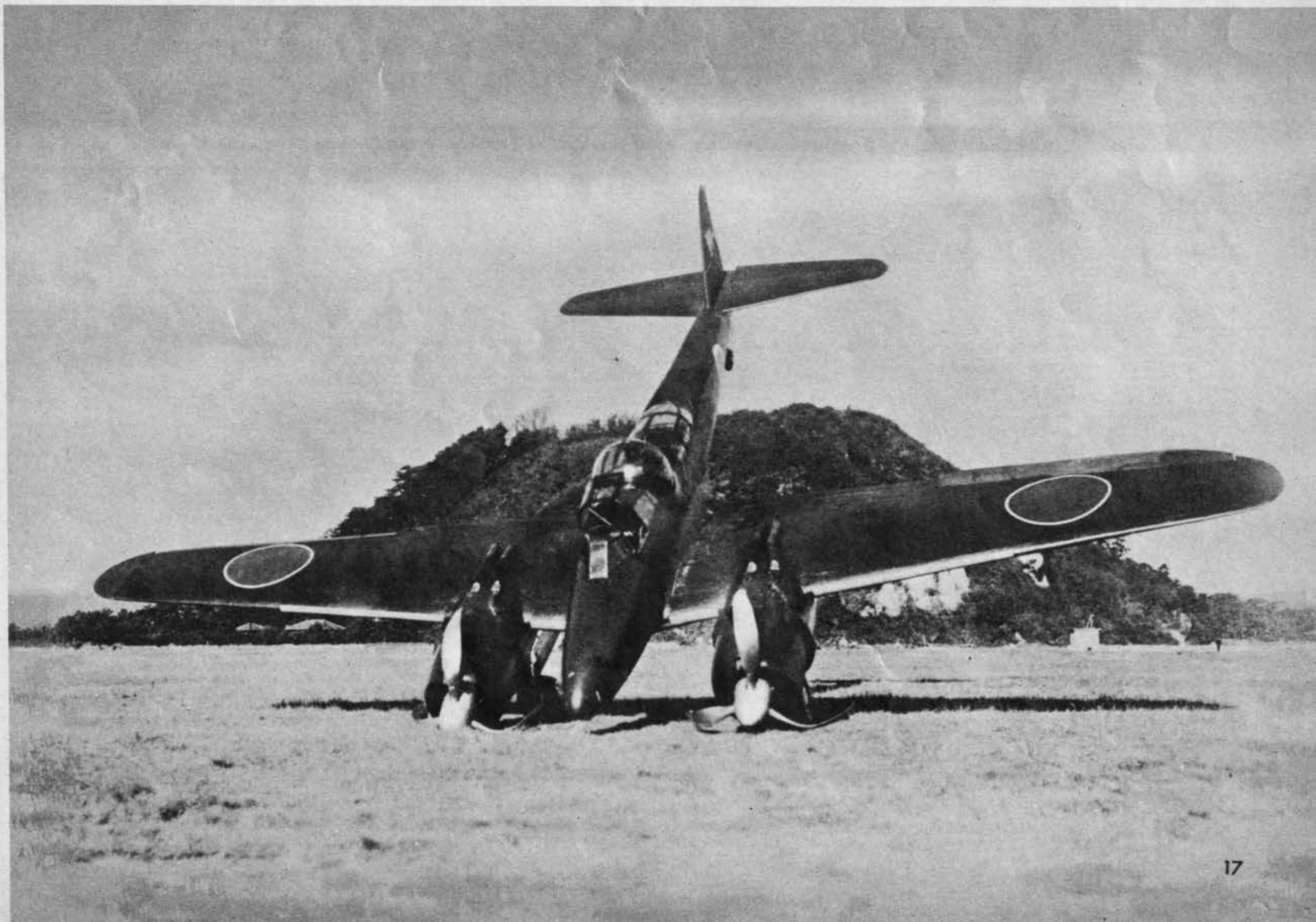
Clean and efficient in design, Frances has a triangular Jap tailplane tacked on fuselage. Multi-purpose Frances has been called Jap counterpart of the Ju-88 and is believed to be adapted for nightfighting. No information as to changes in appearance or armament is available.



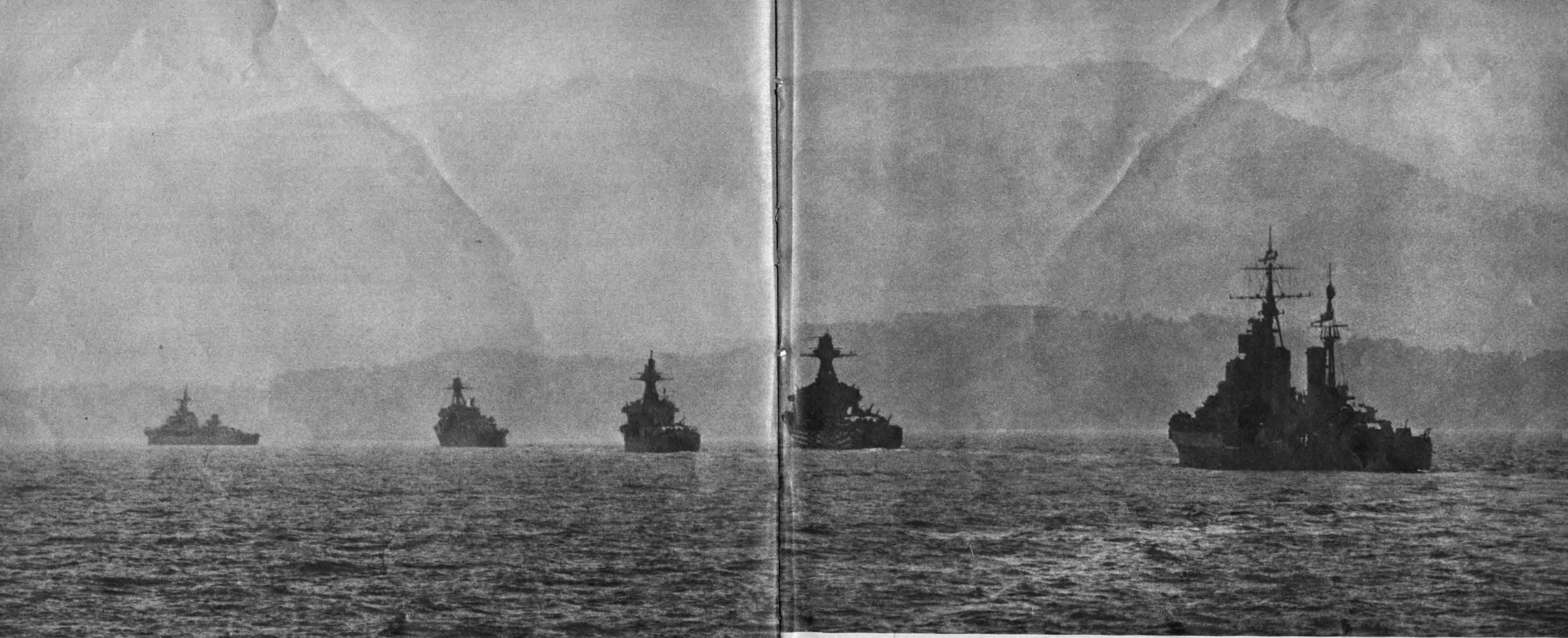
Sharp snout, bristling with radar units, replaces blunt, glassy nose on the nightfighting variation of the Do-217. Known as the J, this model has four machine guns in the nose and four cannon below. Note the distinctive Do-217 fuselage, straight on top with upswept belly line.



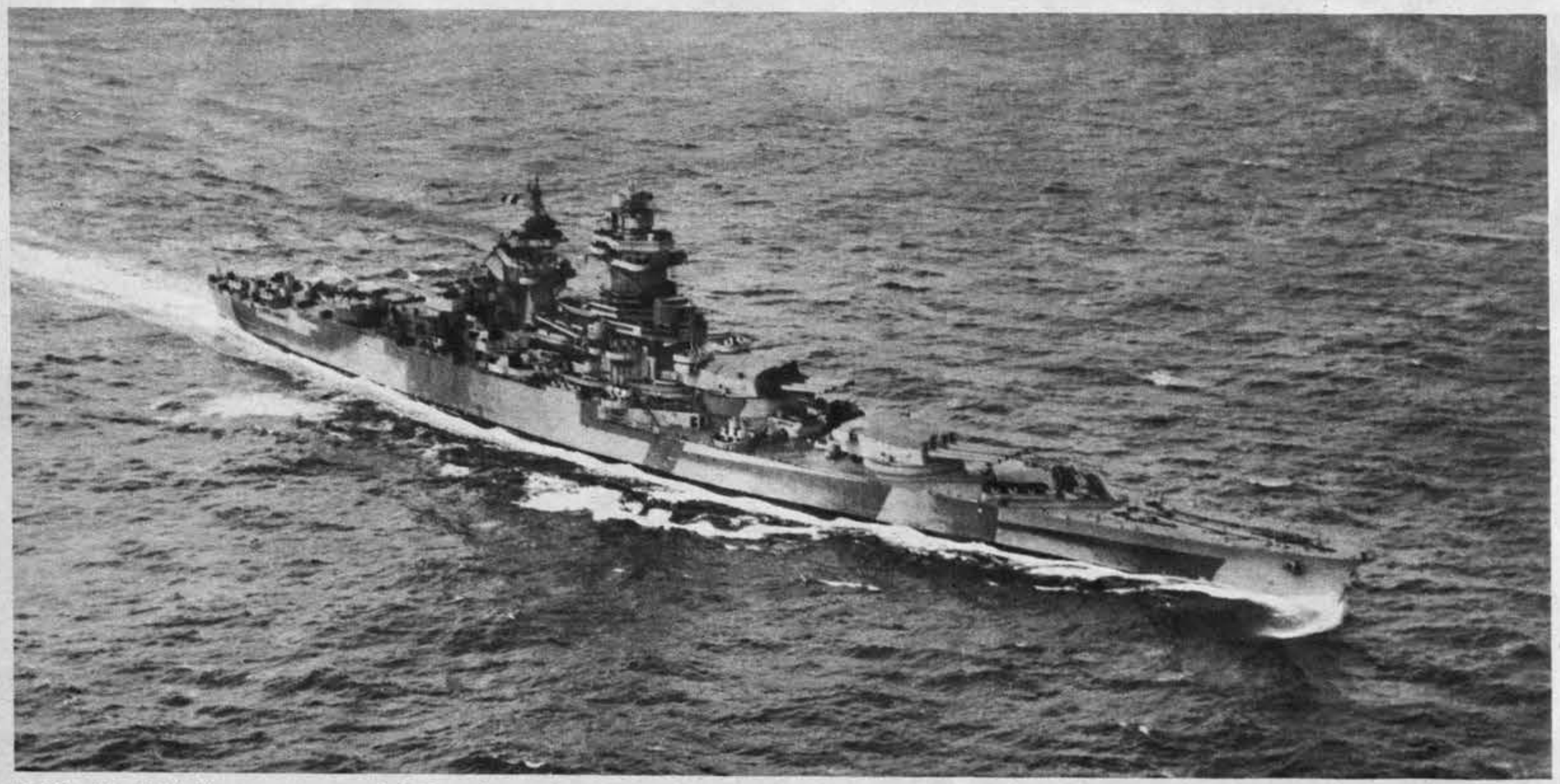
High, blunt nose of Me-410 holds various gun combinations. Glass dome of the cockpit helps distinguish Me-410 from British Beaufighter.



Crashed Irving shows unique twin-level cockpit. Nightfighter model has rodlike radar appendages (one on nose, two paralleling fuselage).



AFTER SUPPORTING THE ALLIED INVASION OF SOUTHERN FRANCE, FOUR FRENCH CRUISERS RE-ENTER TOULON HARBOR IN TRIUMPHANT LINE AHEAD. THE EMILE BERTIN LEADS, FOLLOWED BY DUGUAY-TROUIN AND TWO LA GALISSONNIERES. A BRITISH DIDO CLASS CL BRINGS UP THE REAR (RIGHT)



Battleship Richelieu, most powerful French warship, is stately, logical in design. Fifteen-inch armament is concentrated in two massive four-gun turrets forward, giving the Richelieu an extremely long foredeck. Note unique combination of stack and mainmast tower set well aft.

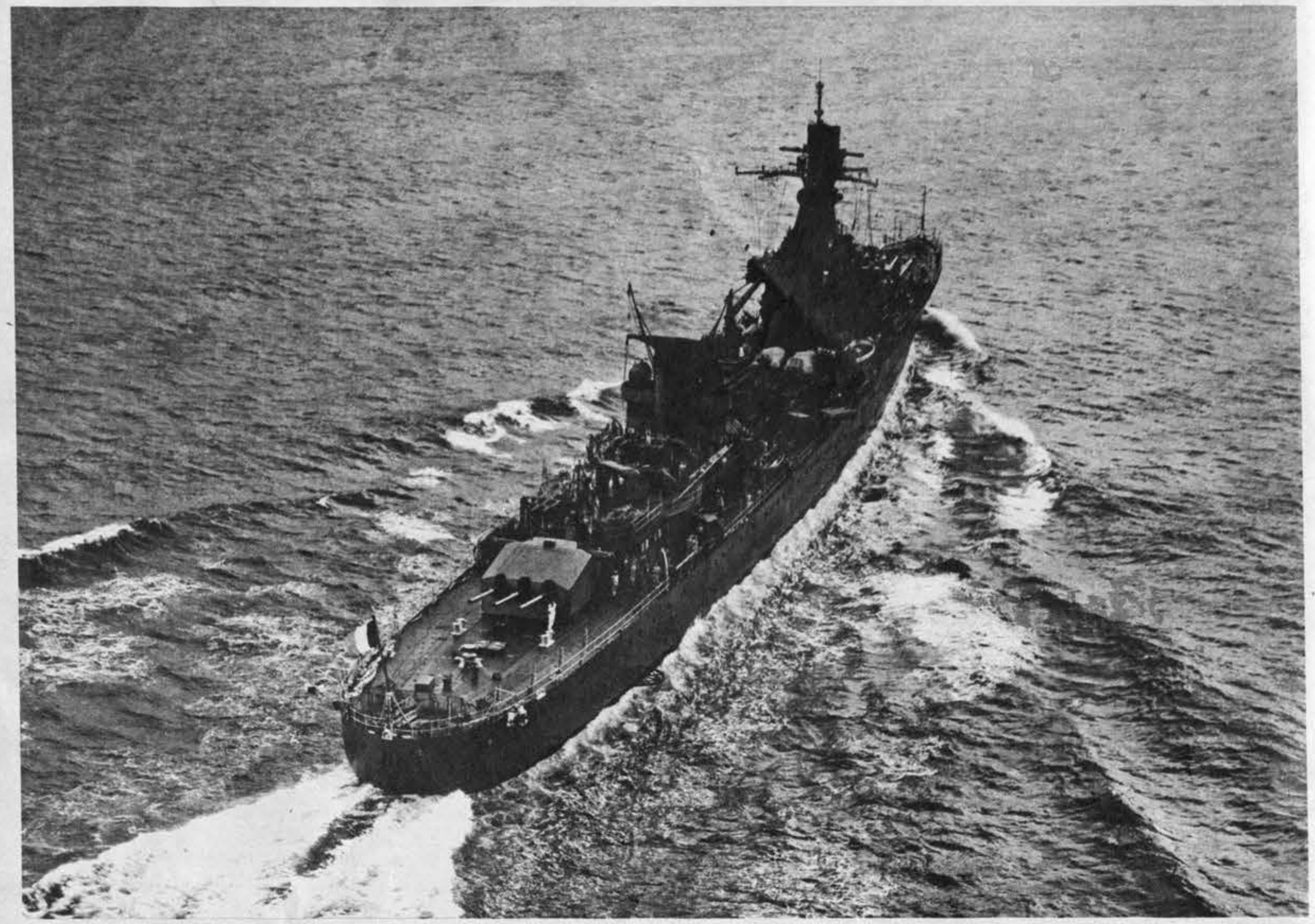
FRENCH WARSHIPS

France entered the war with a fleet that was rated next to the naval "Big Three" of Britain, the U. S. and Japan. High professional standards were maintained and considerable brilliance shown in strategic and tactical thinking; *e.g.*, the French can be credited with developing the modern "task force" theory of naval warfare as opposed to the classic line of battle. Also following a highly individual path in ship design, the French developed the oversize superdestroyer, a new type of offensive weapon, in the '20's. And on recent capital ships, the French introduced a novel concentration of armament forward in two quadruple turrets.

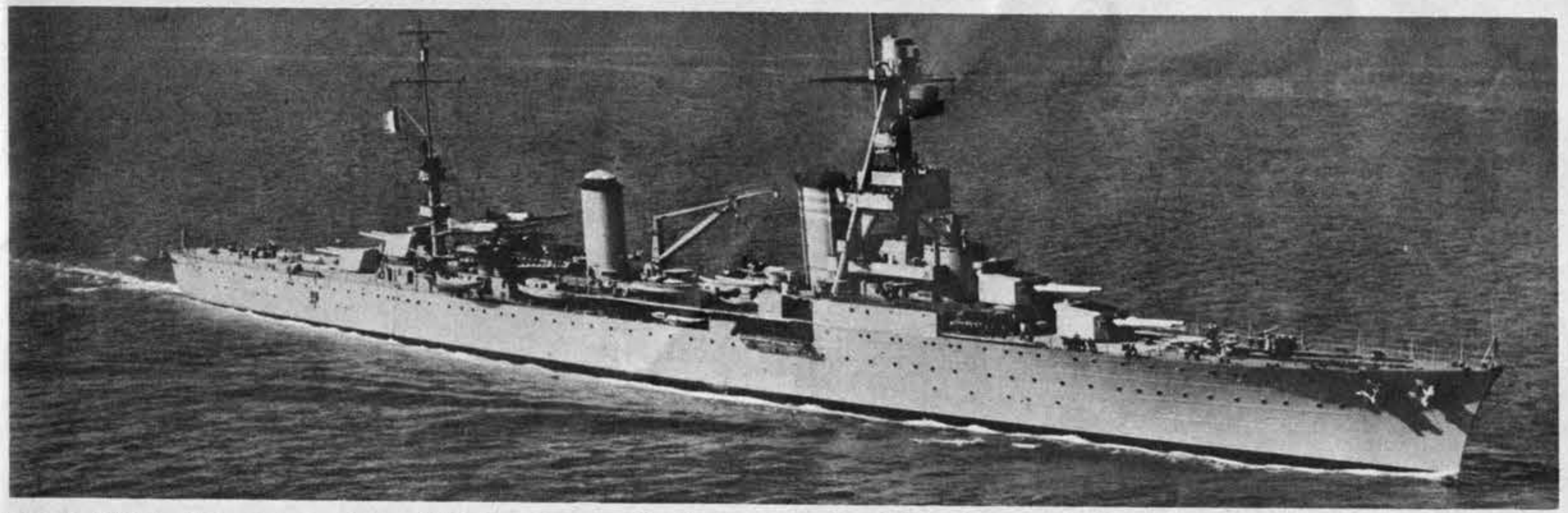
Large-scale reinforcements were planned before the war. In 1940, four new battleships, two carriers, a class of CL's and a number of destroyers were at various stages between the drawing board and final commissioning. These new hulls were largely destroyed on the ways when the Germans swept across northern France to Brittany and the Channel ports. On Nov. 27, 1942 many of the finest French warships afloat were sent to the bottom of Toulon harbor by their own crews. A significant, if paradoxical, victory over German armored columns trying to seize the great naval base, this mass scuttling was also a serious setback to the French Navy.

The French retain a hard core of good ships, units that escaped to England after the fall of France and those inactive in African ports or neutralized at Alexandria and Martinique. Many of these vessels have been refitted at Allied bases and have fought long and well at the side of Britain and the U. S. French units have borne their share of escort and patrol duty in the sustained Battle of the Atlantic and also assisted in the great landings on Normandy and southern France. Though limited in equipment, the French fleet today is still an active and significant fighting force.

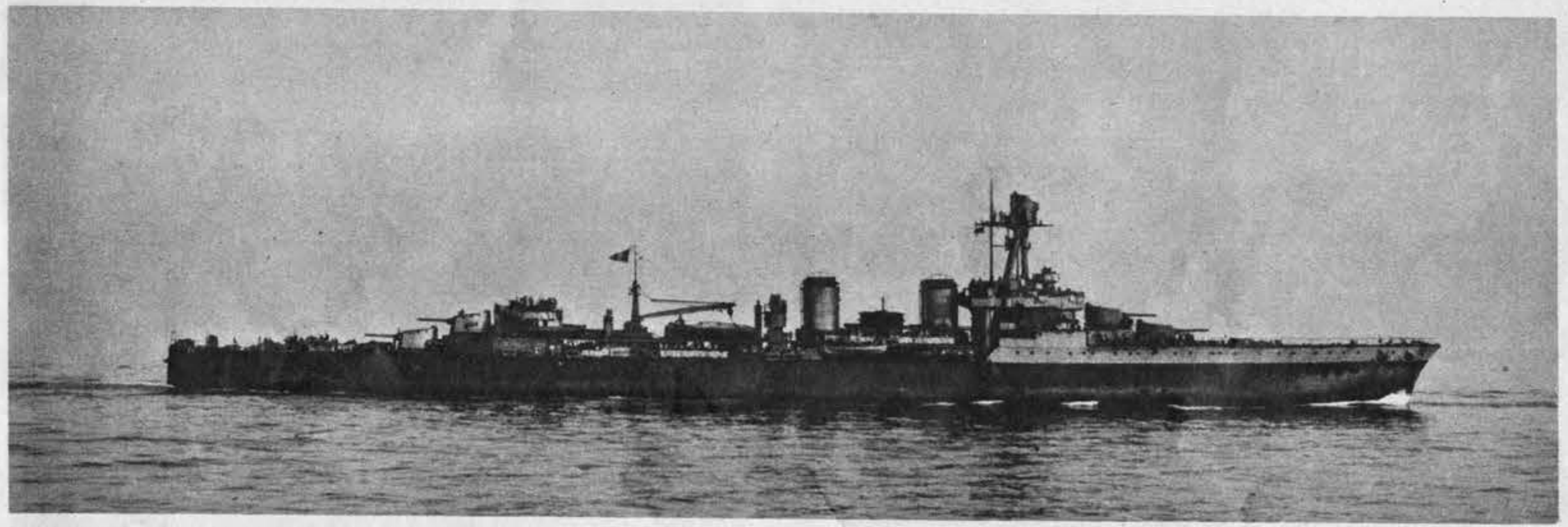
With her far-flung colonies and long naval tradition, France can be expected to stage a great postwar naval revival. The powerful Richelieu, the efficient La Galissonnière CL's and superdestroyers of Le Fantasque Class can serve as nucleus for a new French Navy. The vitality shown in the face of World War II's many disasters indicates France is still potentially a major naval power.



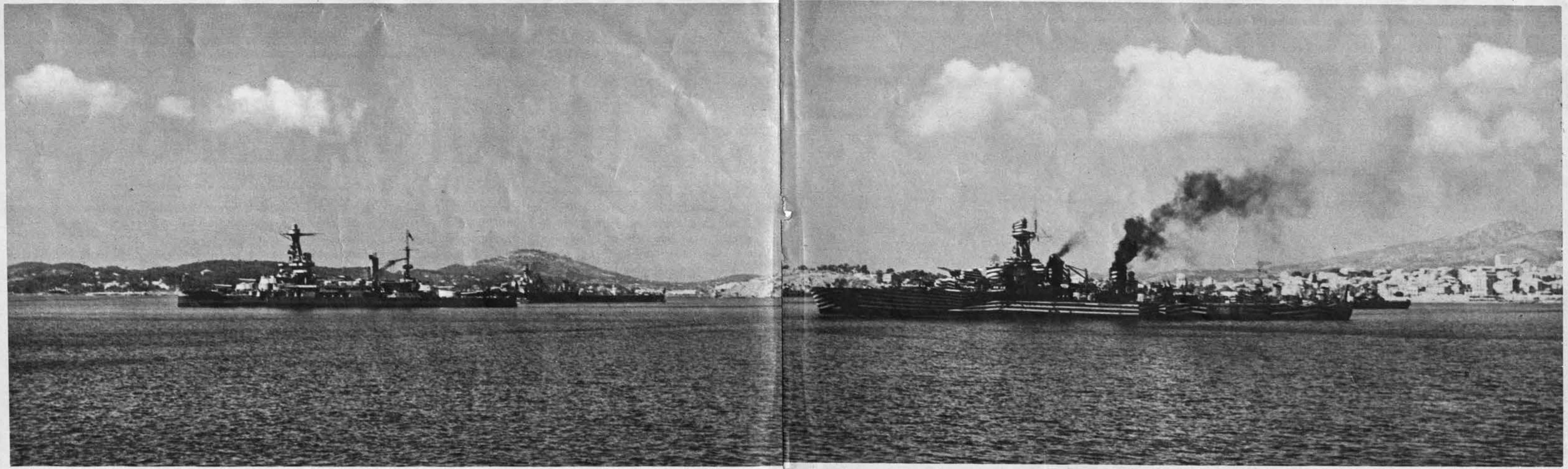
Triple turrets were introduced into French naval design by minelaying cruiser Emile Bertin. Short stacks are widely separated; the after stack is flanked by platforms and horned with radio-antennae supports. Bertin has long swift lines, sturdy tripod foremast typical of French CL's.



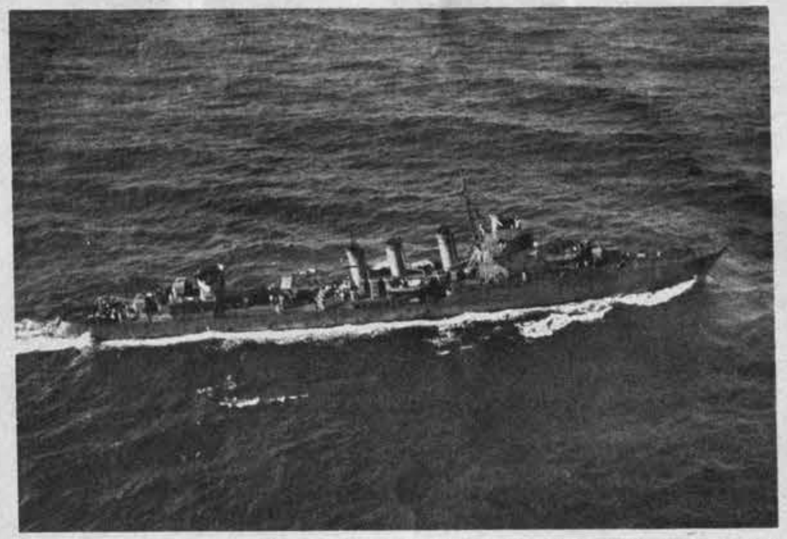
French CA's traded armor carried on British contemporaries for unusual speeds. The Suffren (*shown above*) has clean uncluttered lines, unique bridge, large stacks. Duquesne Class, predecessor of Suffren, is similar but with stacks of equal height, taller mainmast, lower bridge.



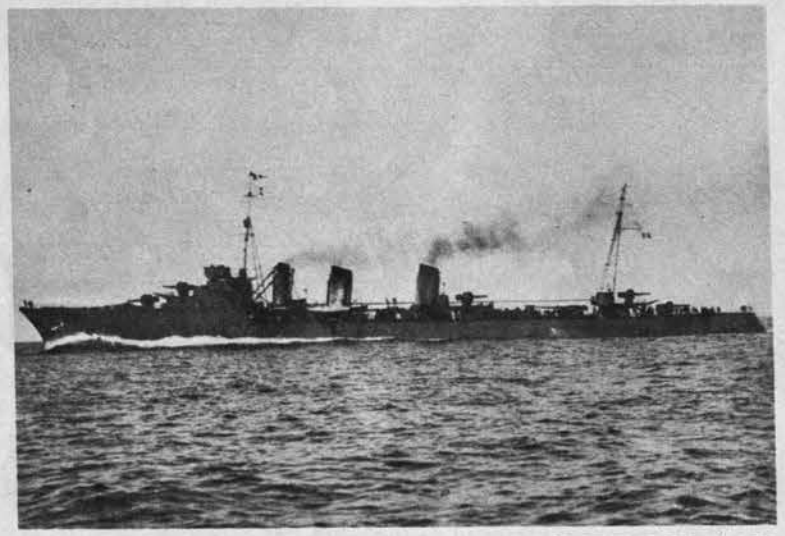
Low stacks, tripod masting and ample freeboard are French design traits clearly shown by the CL Duguay-Trouin. More antiaircraft was added aft, mainmast removed during refit at African ports in 1943-44. Eight 6.1-in. guns are mounted in small turrets (two fore, two aft).



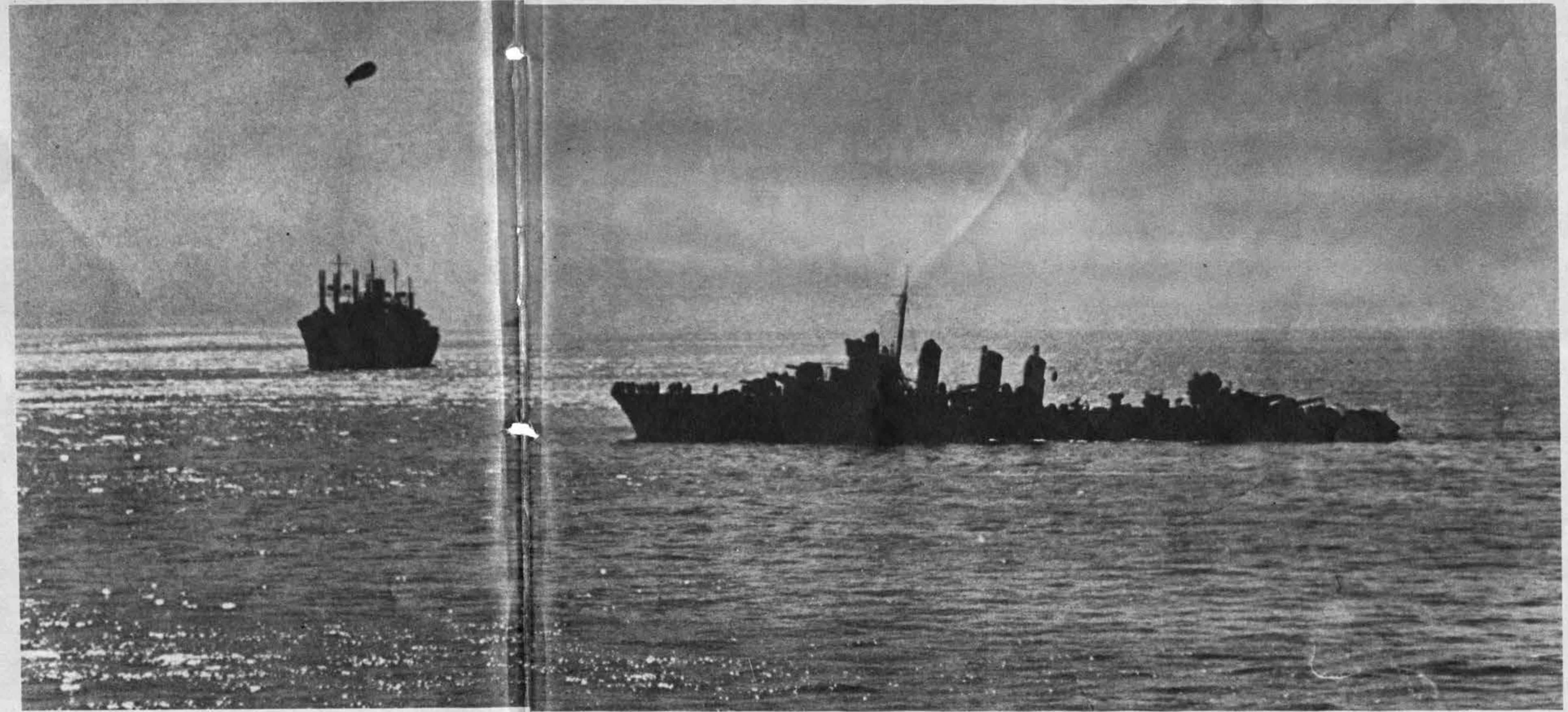
SHORT HULL, STATIC LINES OF THE OLD-TYPE BATTLESHIP ARE FOUND ON THE VETERAN LORRAINE (LEFT). ZEBRA-STRIPED GLOIRE (RIGHT) IS ONE OF THREE LA GALISSONNIÈRE CL's. LONG AND SPACIOUS IN PROFILE, THEY CARRY NINE 6-IN. GUNS IN TWO TRIPLE TURRETS FORWARD, ONE AFT



BOURRASQUE, ALCYON DD CLASSES HAVE THREE CLOSELY SPACED STACKS

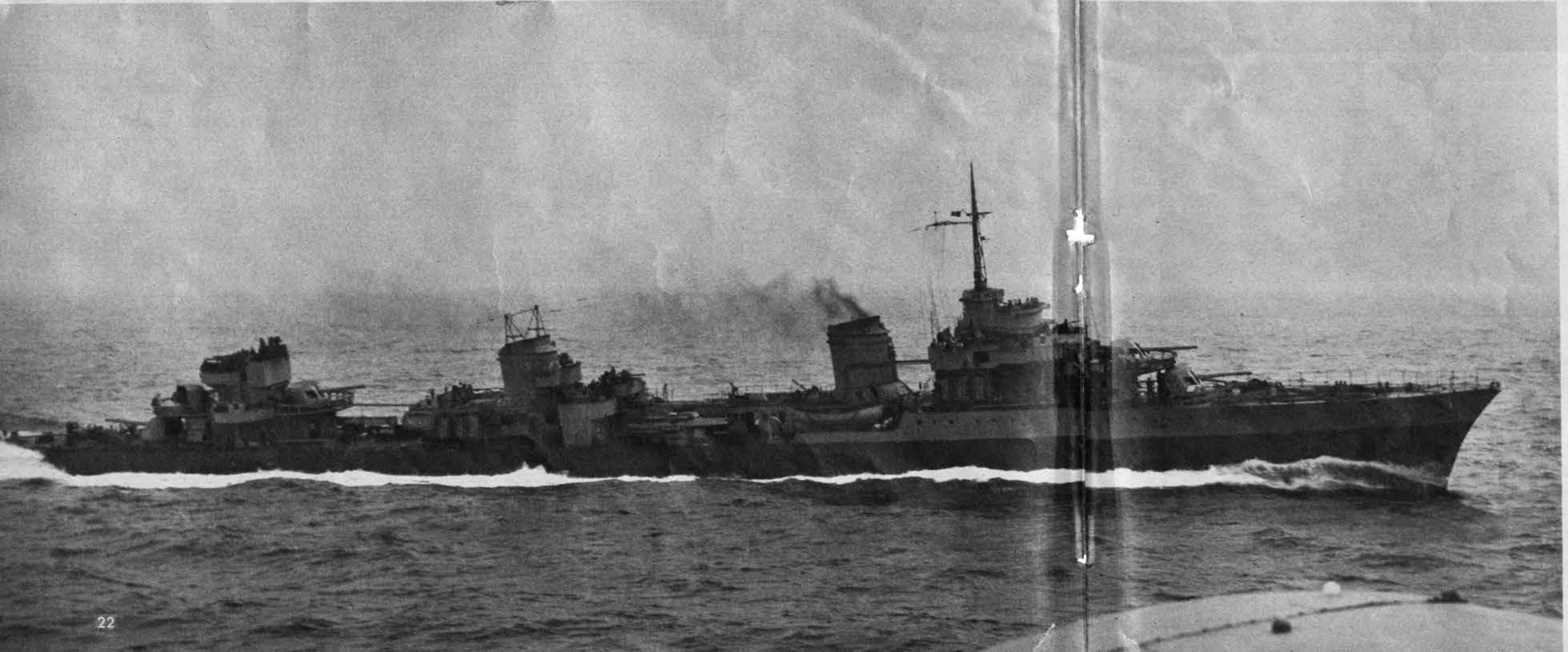


REFITTED DD TIGRE NOW HAS NO MAINMAST, LARGE CLUMP OF AA AFT

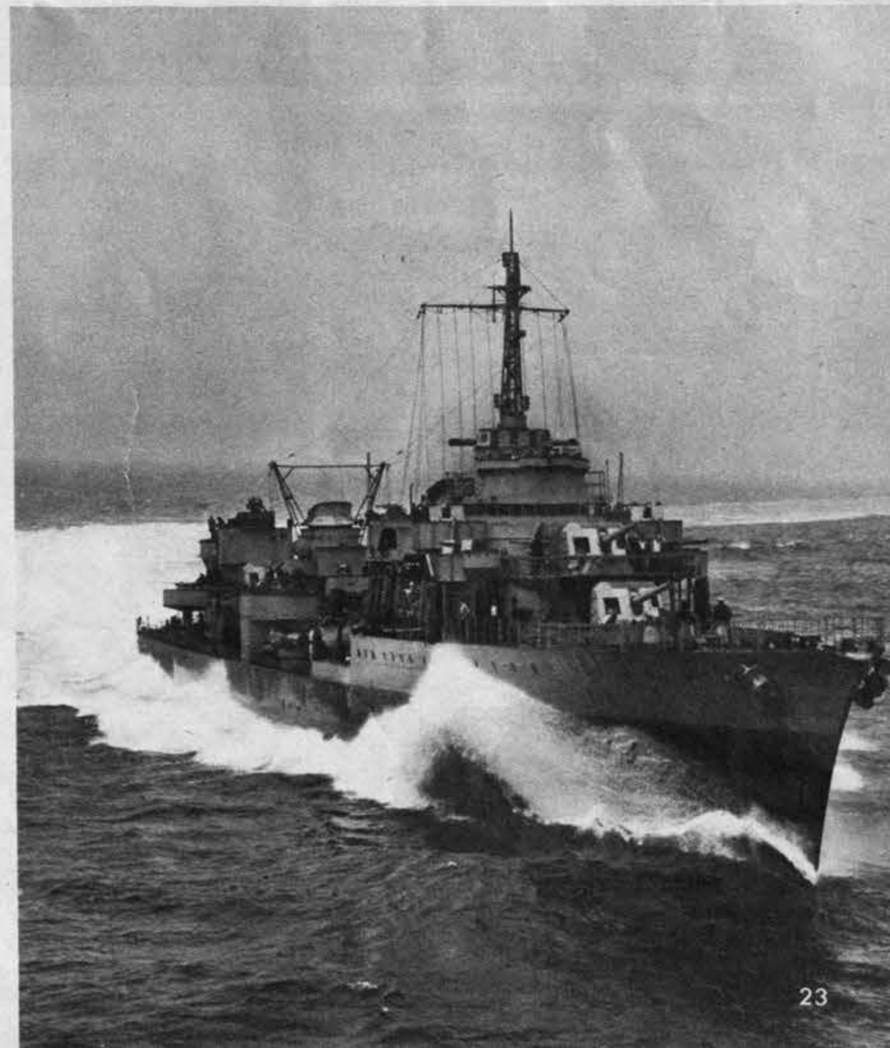


SHEPHERDING TRANSPORTS OFF SOUTHERN FRANCE, BOURRASQUE-ALCYON DD LOOMS BLACK AGAINST SPARKLING SEA. 1,700-TON FLEET DESTROYERS, ALCYONS ARE IMPROVED VERSION OF BOURRASQUES, SIMILAR IN APPEARANCE

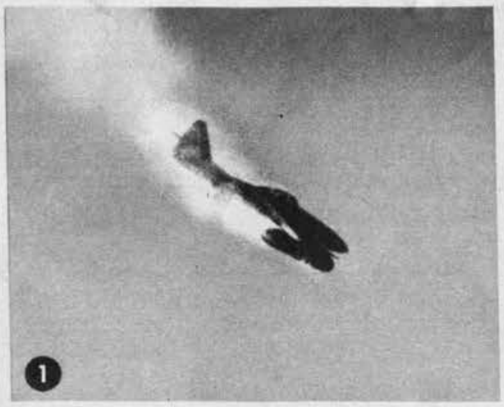
LOW, STURDY OUTLINE MARKS LE FANTASQUE SUPERDESTROYERS (NOW RATED AS CL'S BY FRENCH). NOTE SQUAT, WIDELY SEPARATED STACKS, MOUND OF GUN POSITIONS WELL AFT. FANTASQUES CARRY FIVE 5.4-IN. GUNS



LE FANTASQUE CLASS DISPLACES 2,500 TONS, IS SMALL FOR RATING OF CL



QUIZ NO. 2: FIFTEEN FLYING ENEMIES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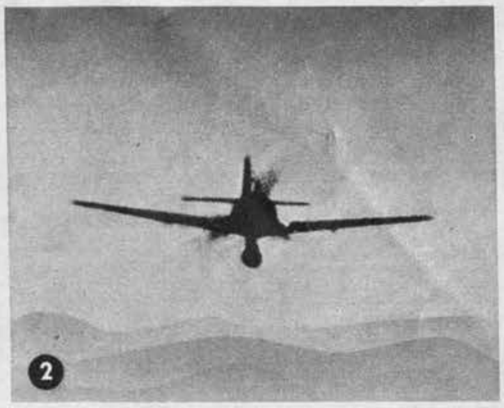
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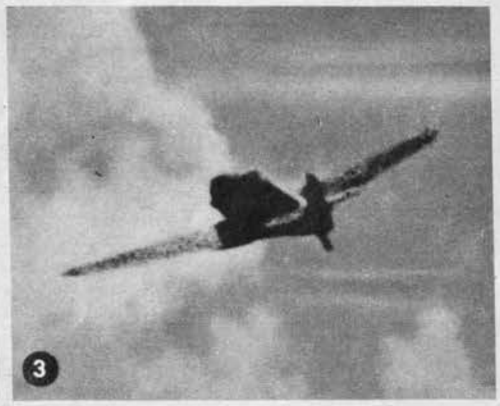
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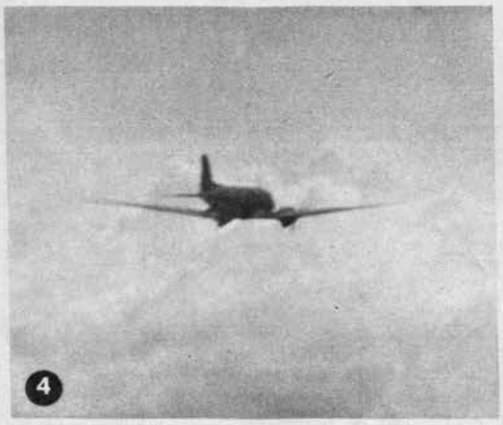
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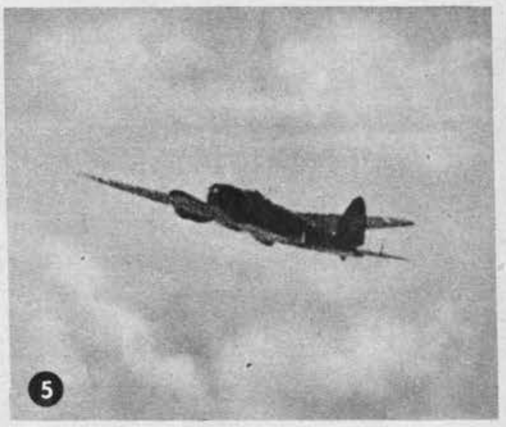
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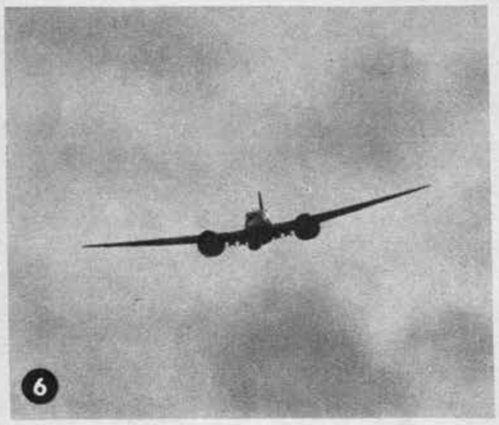
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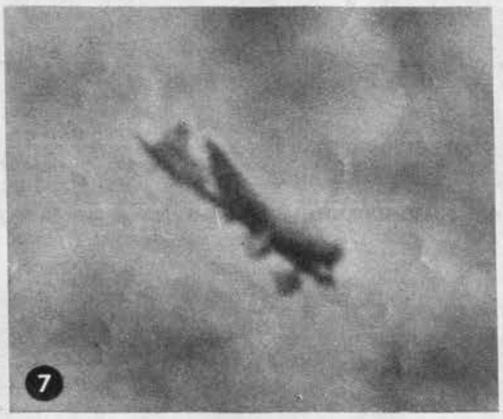
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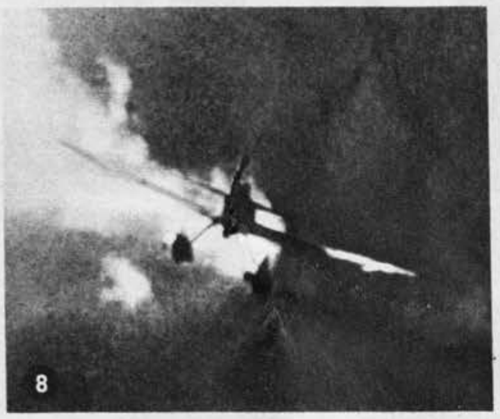
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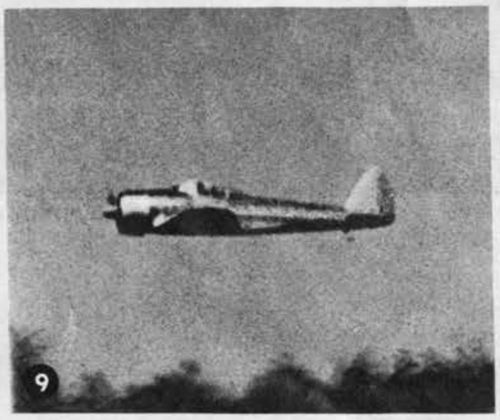
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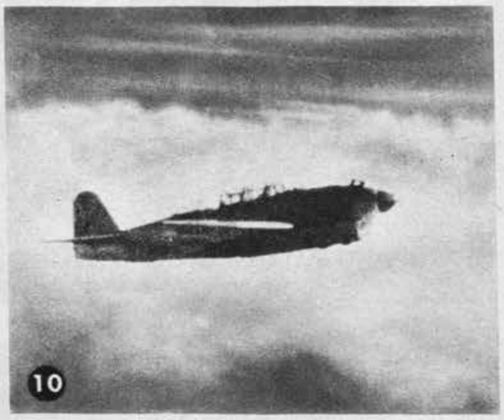
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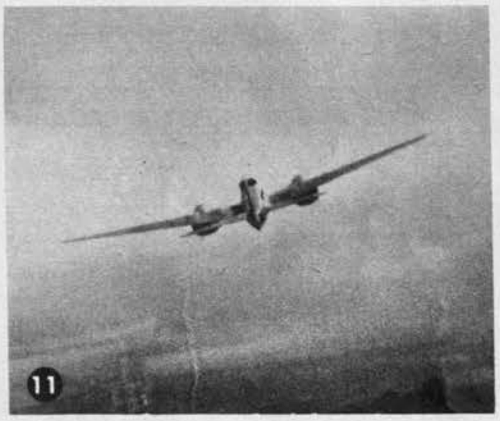
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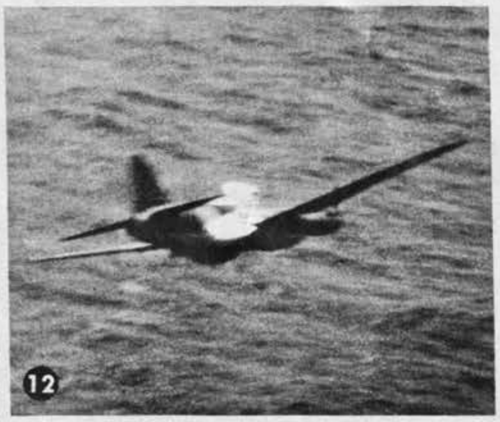
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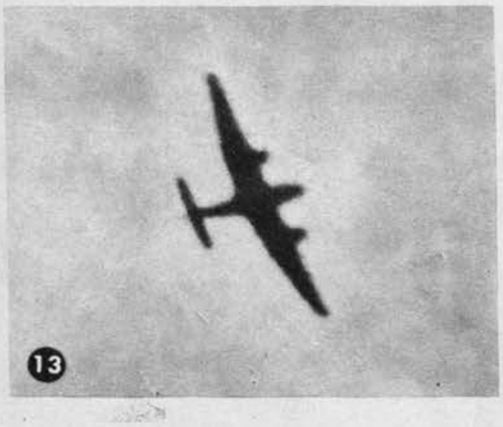
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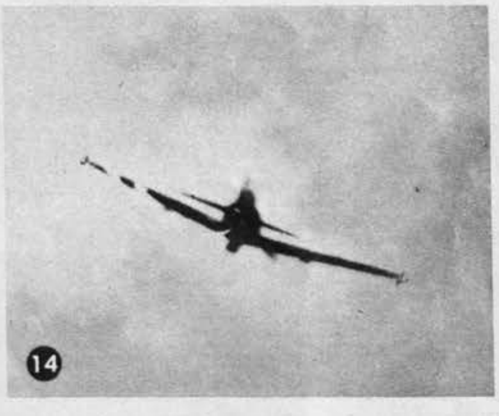
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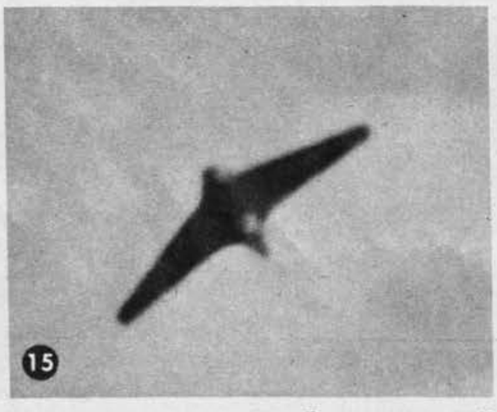
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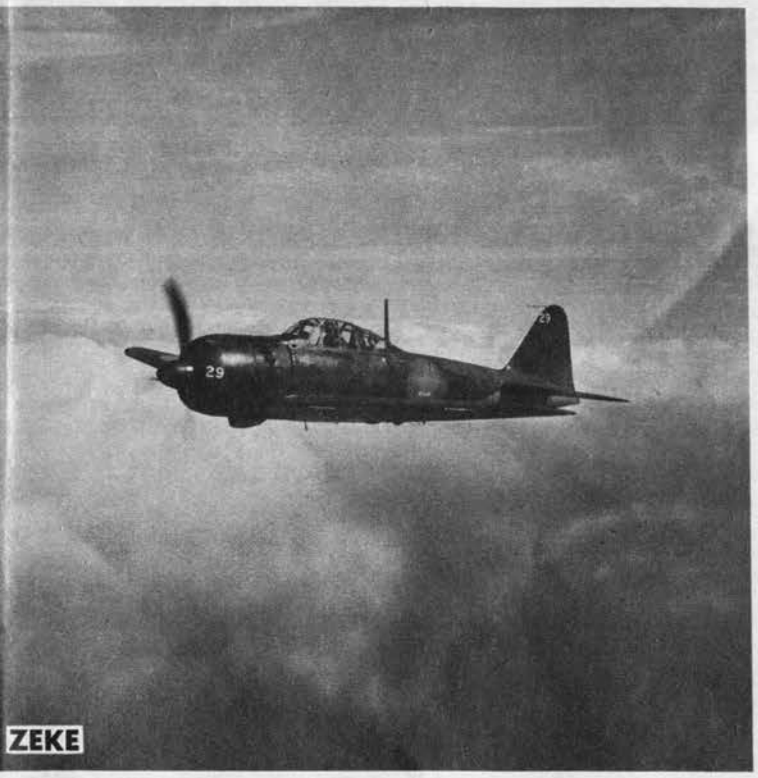
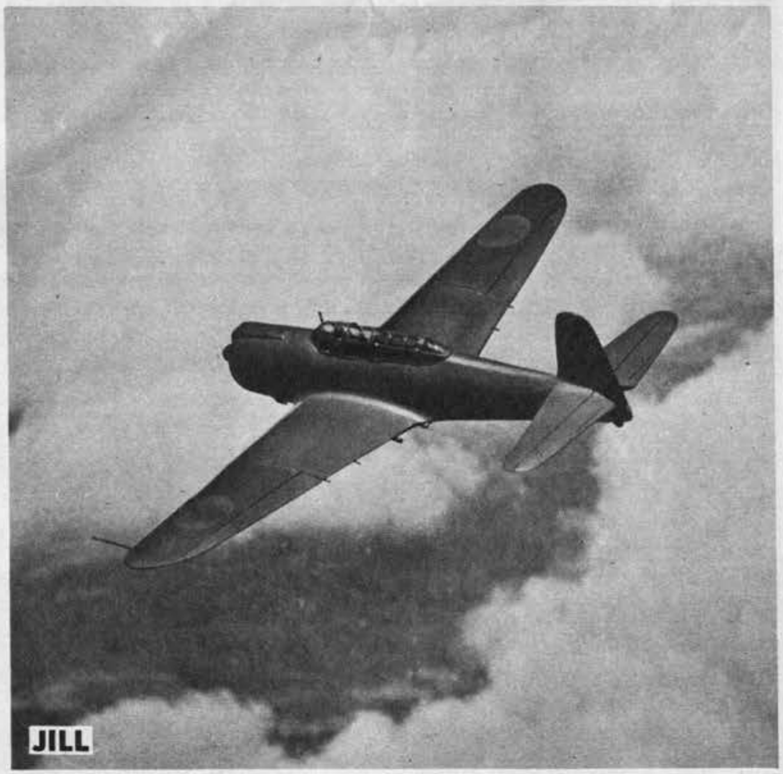
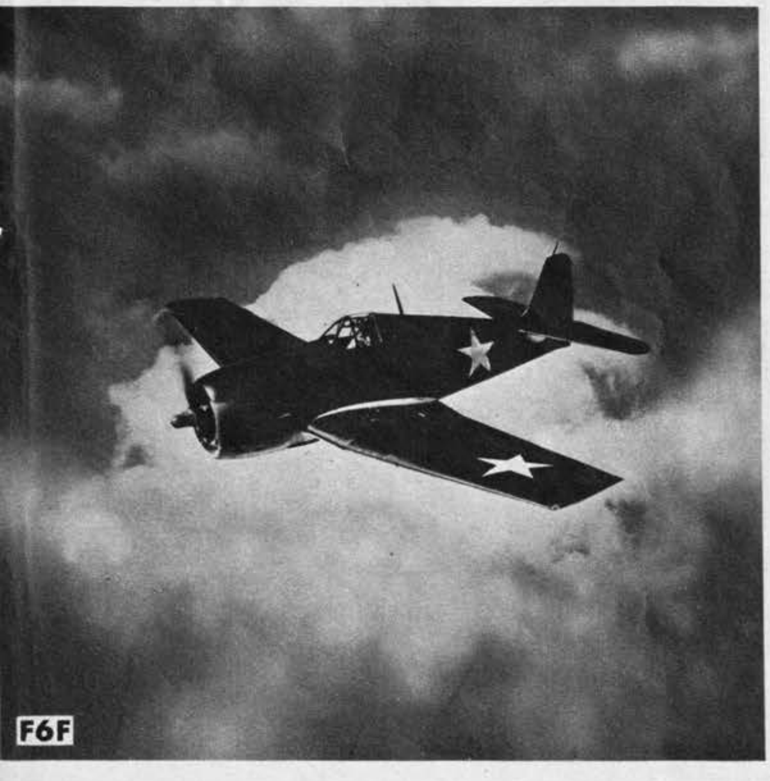
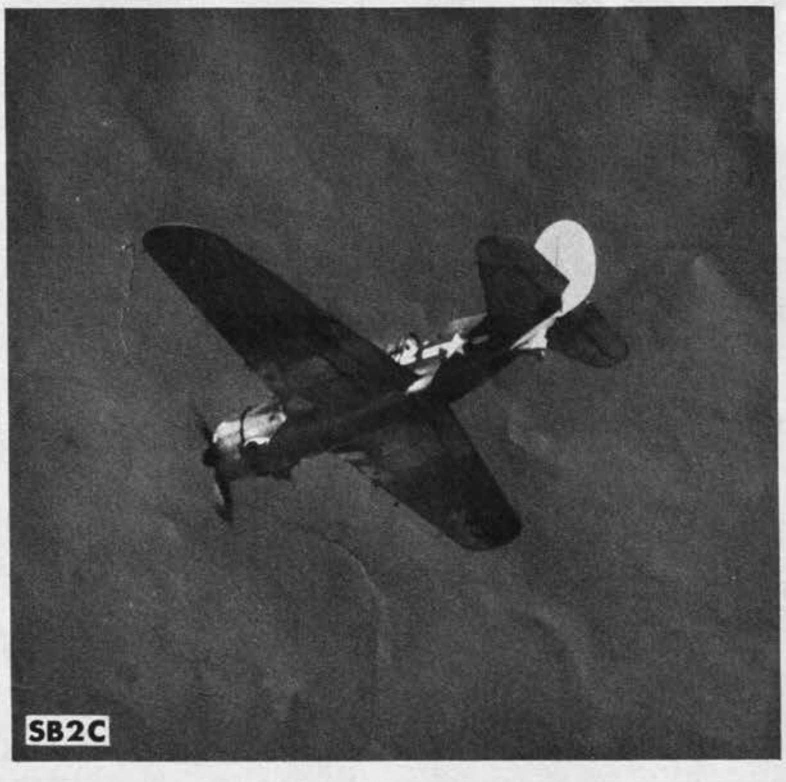
For answers see p. 48


ZEKE

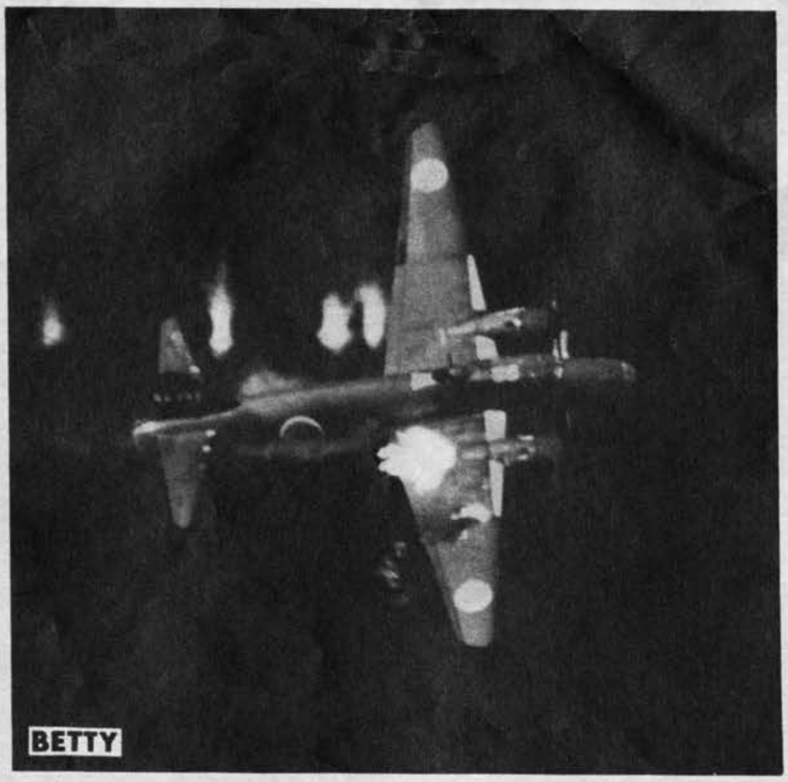

JILL

tailplane set far forward of the fin and rudder. Jill's high greenhouse exemplifies Jap light-bomber design while its round nose and low wing follow the general Jap single-engine trend. U. S. single-engine types show chunkiness or angularity or, as in the F6F, both. Except on the P-51, wings are low-mid rather than low. Noses are longer than the Japs' and, as on the P-47 and F6F, are sometimes oval due to airscoops. Tailplane "bite," prominent on many U. S. planes (P-47, SB2C, others), is less evident on Japs.

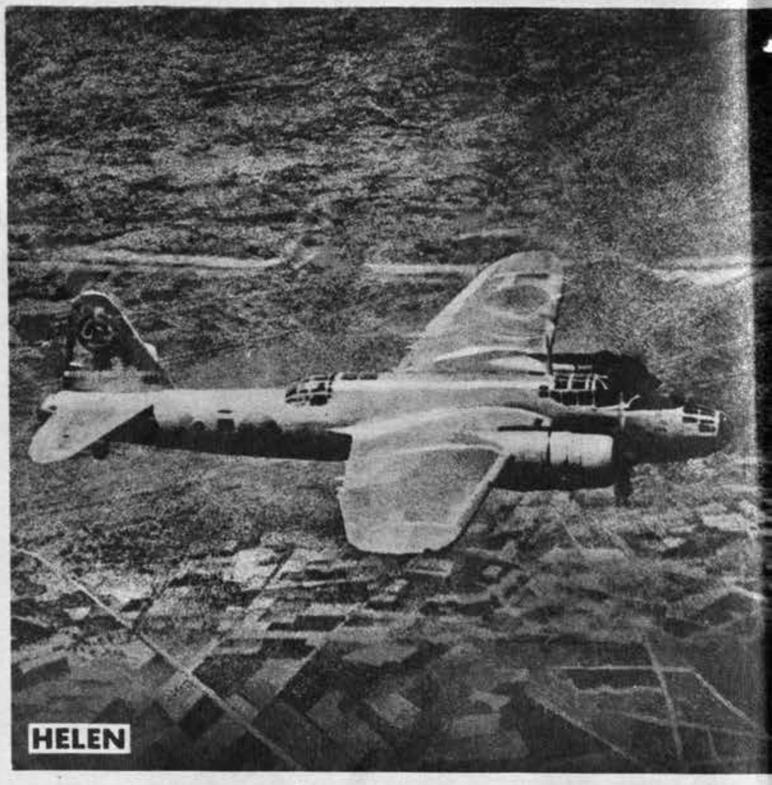

F6F


SB2C

JAPAN



BETTY

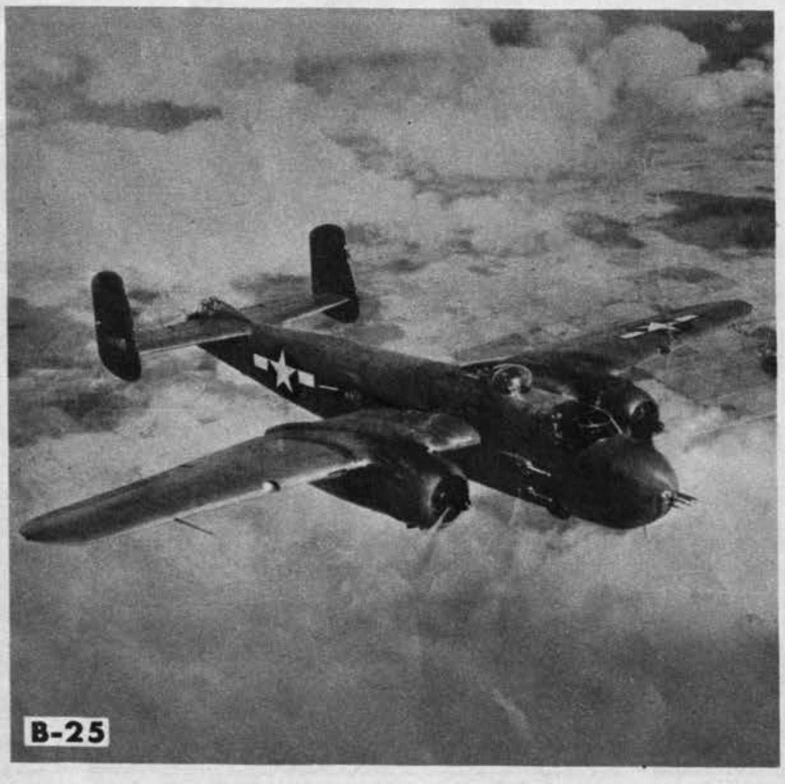


HELEN

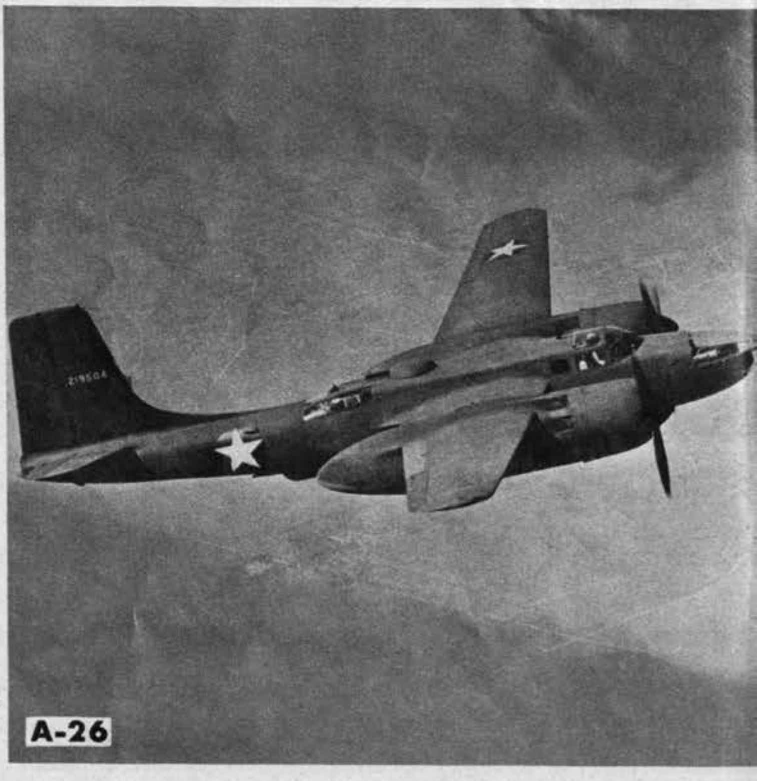
TWIN ENGINE

Remarkable consistency of tail assemblies marks Japan's twin-engine types. Tailplanes are horizontal; fins and rudders appear tacked on. Their leading edges taper more than trailing edges and curved fairing forward is unknown. Nacelles, which do not

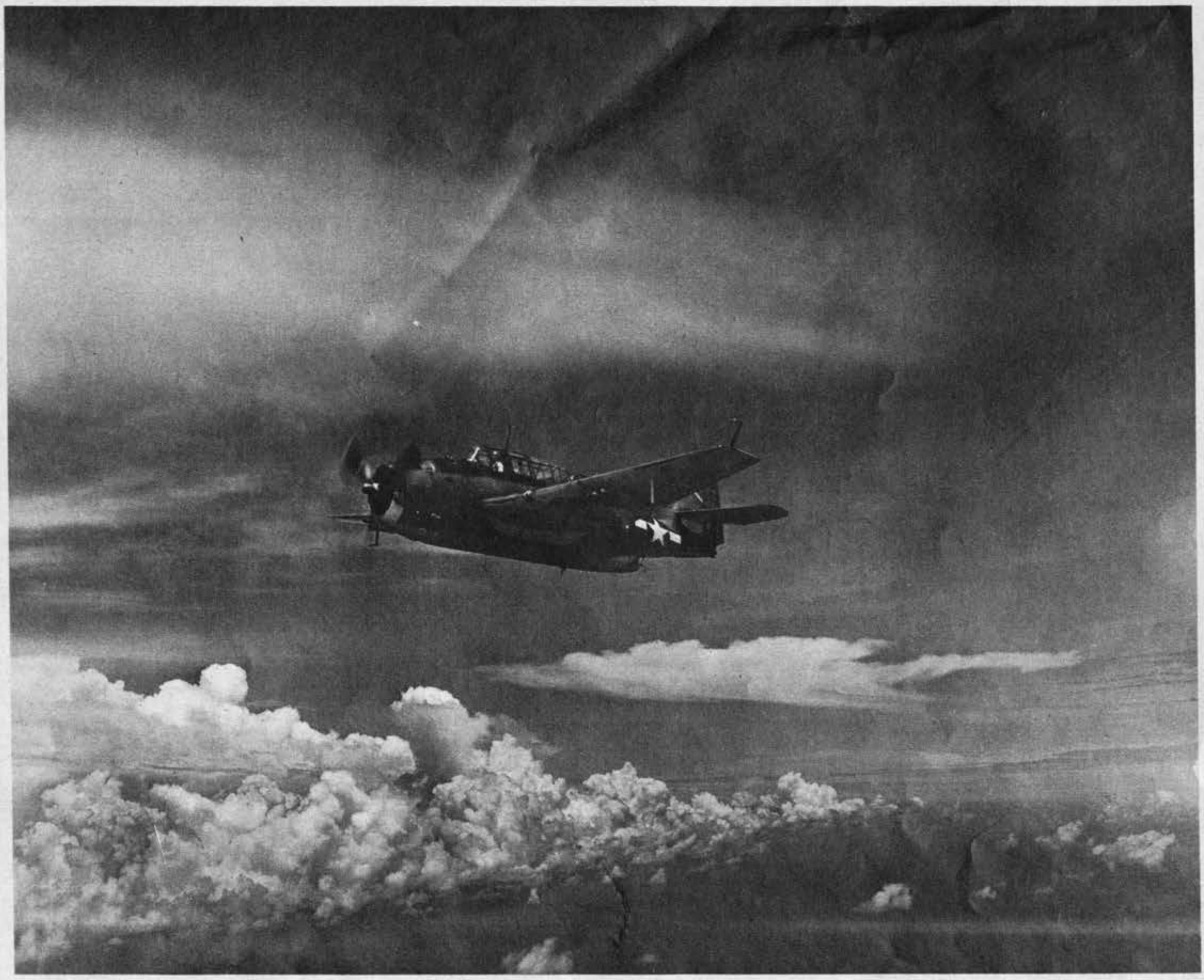
U. S.



B-25



A-26



WITH BROKEN MID-WING, THICK FUSELAGE AND ANGULAR WING AND TAIL, TBM EMBODIES TYPICAL FEATURES OF U.S. AIRPLANE DESIGN

PACIFIC CONTRAST

Combat experience has shown that even when Jap planes were too far away for positive recognition, U. S. airmen have often tagged them for enemies and could say, "It sure looked like a Jap." In many cases they could spot some definitely Japanese detail; in others they probably saw that the bogey just did not look American.

The fact is that both in specific details and overall design U. S. and Japanese combat planes are consistently different. In general Jap noses are shorter; Jap wings are set lower; Jap fuselages are more slender and trim. U. S. planes are heavier, more complex and show much more angularity of wing and tail. So regular are these contrasts that, with a few exceptions, conclusions can be made regarding single- and twin-engine fighters and bombers. For example, all single-engine planes having round noses and low wings with dihedral from the roots are Jap. All U. S. twin-engine planes except F7F have either twin fins and rudders or sharp tailplane dihedral. Though an exception as regards the empennage, the F7F has markedly U. S. traits, namely a shoulder wing and nacelles protruding well behind the wing's trailing edge.

Further examples of U. S. and Japanese design differences are shown on the following pages. These examples can be an extremely valuable recognition guide as well as a foundation for plane-by-plane study of Jap airplanes. Extreme care, however, must be shown in noting exceptions and interpreting these observations. Simply because all planes answering a set description are Jap, it does not follow that all others are U. S.

Moreover, no system of national variations in design can tell a pilot or gunner what he most needs to know, the exact identity of his opponent. B-29 crews over Japan have no trouble recognizing planes by nationality. Yet for accurate shooting they must know Japanese types for proper fire-control adjustment. Despite the obvious shortcomings of any general rule as a cure-all, awareness and application of airplane national characteristics in any set theater of war is a definite recognition asset.

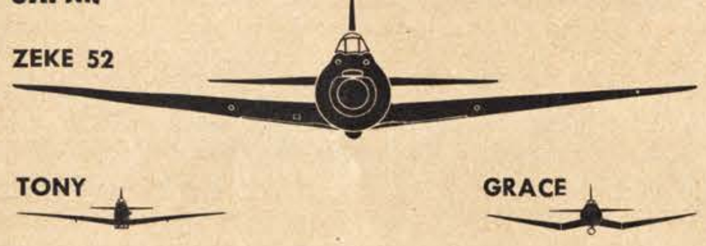
JAPAN VS. U.S.

NATIONAL DIFFERENCES IN PLANE DESIGN

~~RESTRICTED~~

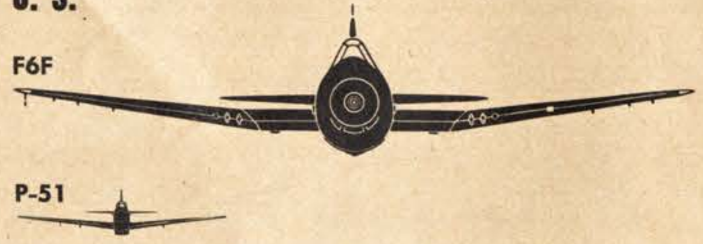
SINGLE ENGINE

JAPAN

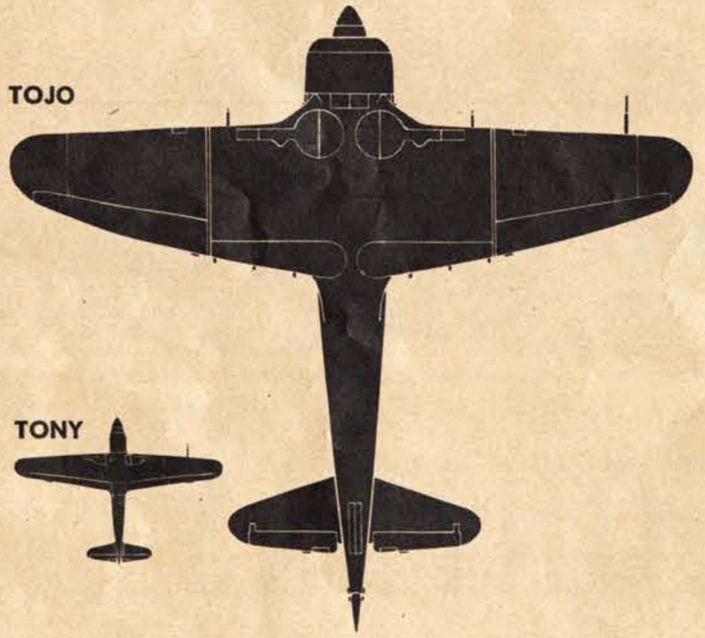


HEAD ON, Zeke is good example of the round nose and unbroken low wing with dihedral from roots found on most Jap single-engine planes. Tony, Grace are obvious exceptions.

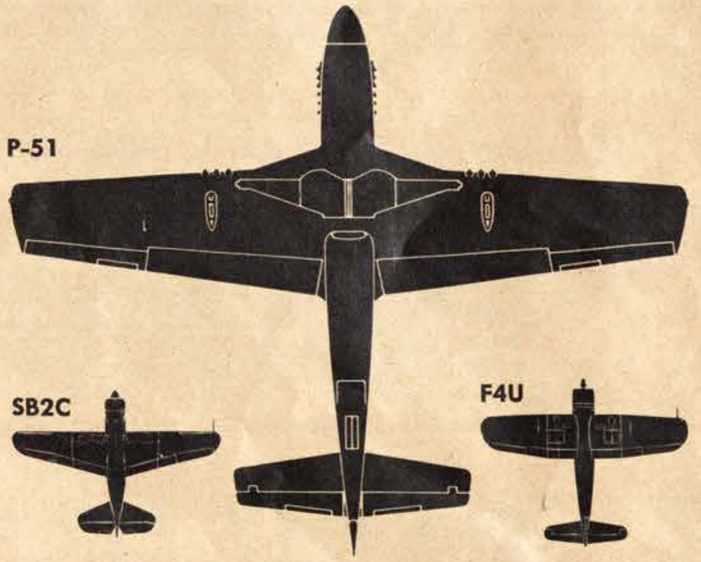
U. S.



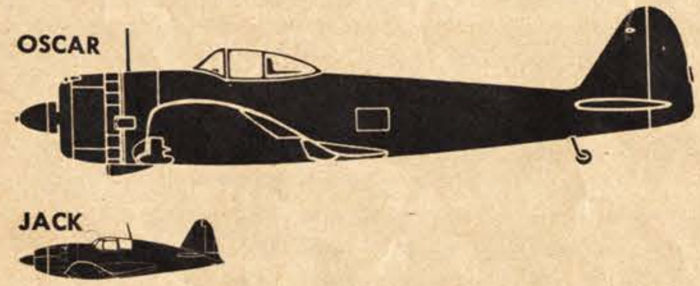
U. S. WINGS are either broken as on F6F, F4U, TBM, SBD or more mid than low (FM-2, P-47). P-51 has low, straight wing, however, and head-on closely resembles Jap Tony.



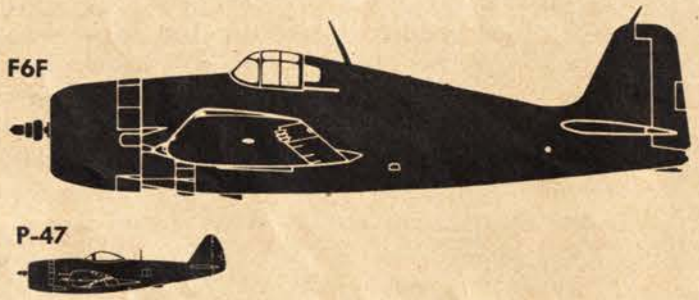
PLAN VIEW of Tojo shows Japanese trend to short, stubby nose. Tailplanes are neatly triangular, often set forward of fin, rudder. Inline engines set Tonys and most Judys apart.



U.S. TYPES are individual in appearance but often have long noses, irregular-shaped wings (P-51). Tailplanes often have wide "bite" (SB2C). F4U has brief nose but unusual wing.



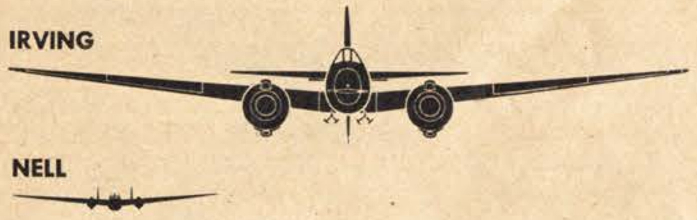
COCKPIT ENCLOSURES, small but prominent, are usually far forward on Jap single-engine fighters; light bombers have long greenhouse. Jack has faired cockpit amidships.



BEAM VIEWS of U. S. single-engine types do not follow any consistent pattern. In general, fuselages are less evenly tapered than Japs'. In side view P-47 is most like a Jap fighter.

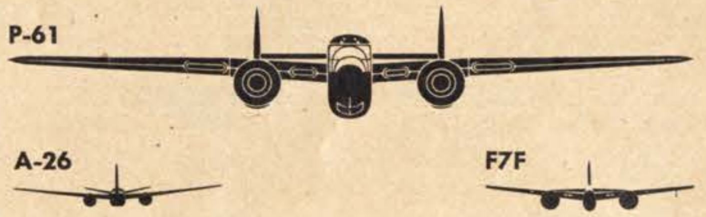
TWIN ENGINE

JAP

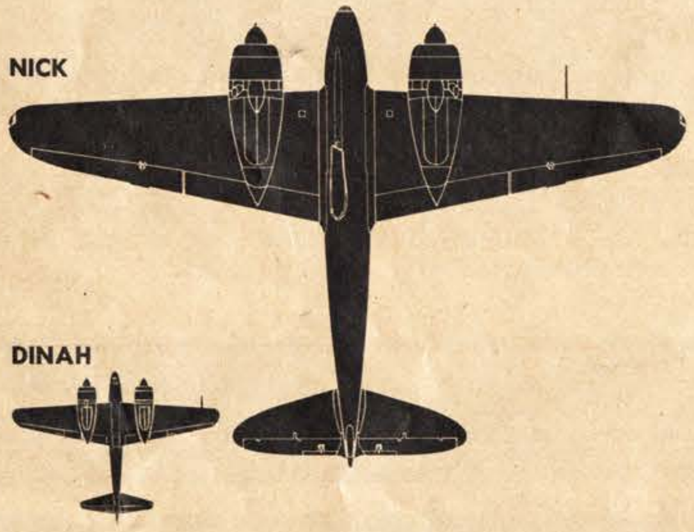


LOW OR MID-WING is featured by all Jap twin-engine fighters and medium bombers. All have low, flat tailplane. Except obsolescent Nell, all have a single fin and rudder.

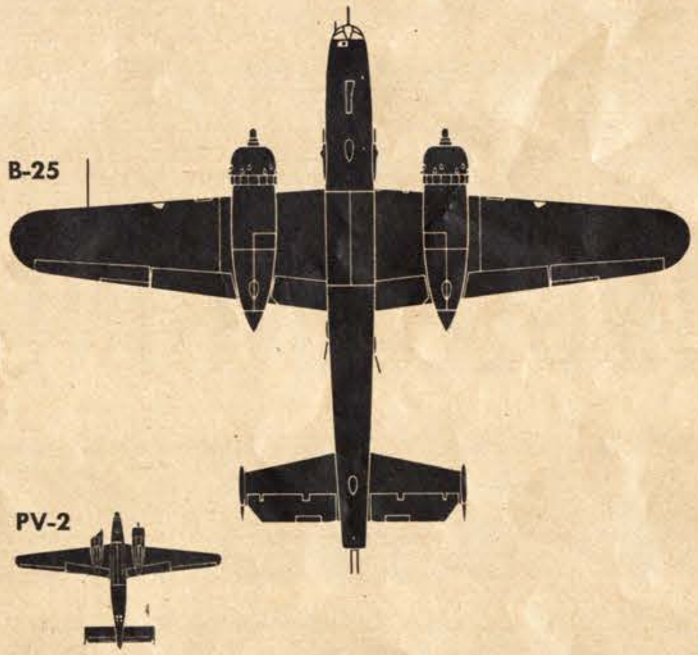
U. S.



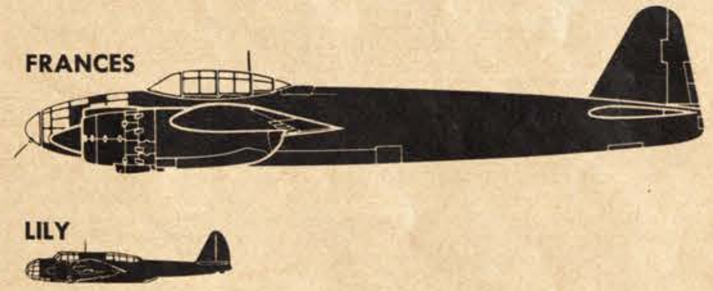
MID TO HIGH WING is found on all U. S. twin-engine aircraft. Most have twin-tail assemblies. Single fin-and-rudder types have tailplanes with marked dihedral, except the F7F.



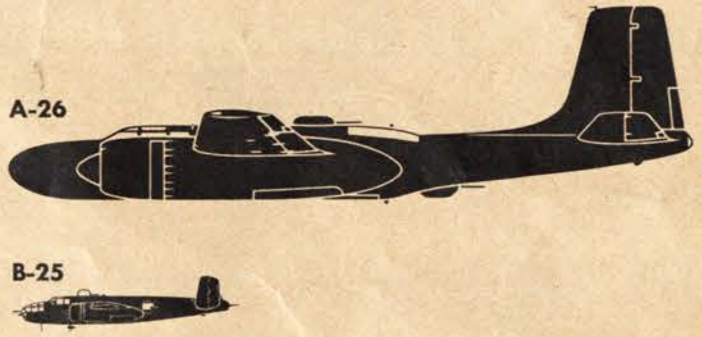
WING is set well forward on most Jap twin-engine aircraft, giving them short noses and long, trim rear fuselages. Dinah is only Jap aircraft with nacelle projection abaft wing.



BOOMS OR NACELLES projecting beyond wing's trailing edge are distinctive trait of U. S. twin-engine planes. PV-1 and PV-2 are the only types lacking some rear projection.

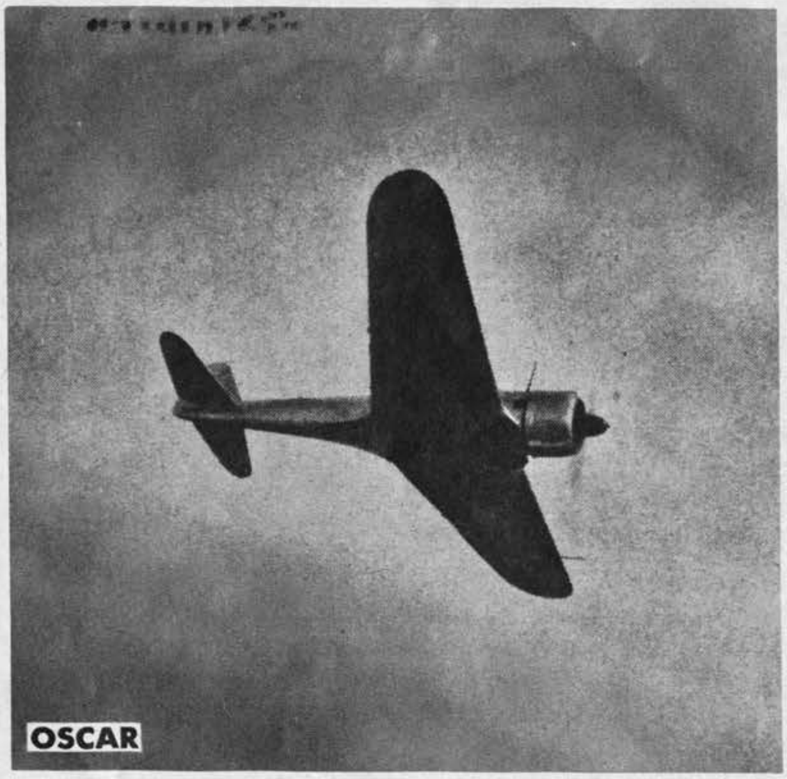


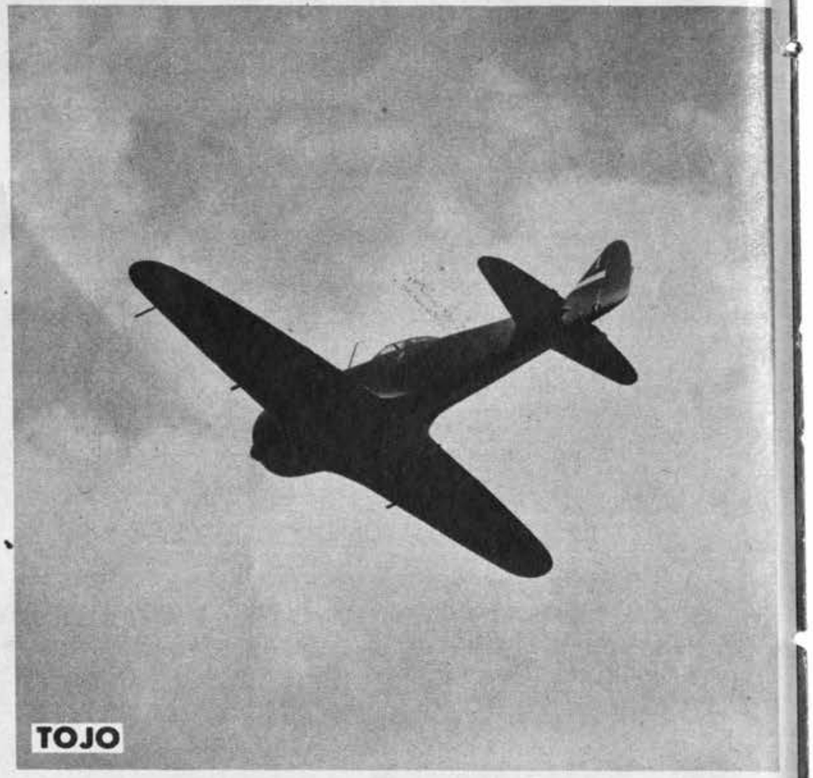
UNFAIRED FIN AND RUDDER with sharply tapered leading edge is "tacked on" the long, straight fuselage of Jap twin-engine aircraft. Belly break gives Lily slightly upswept tail.



UPSWEPT TAIL usually crowns unsymmetrical fuselage of U. S. twin-engine types. They never have nacelles extending perceptibly below belly. B-25 is straight, deeper than Japs.

JAPAN

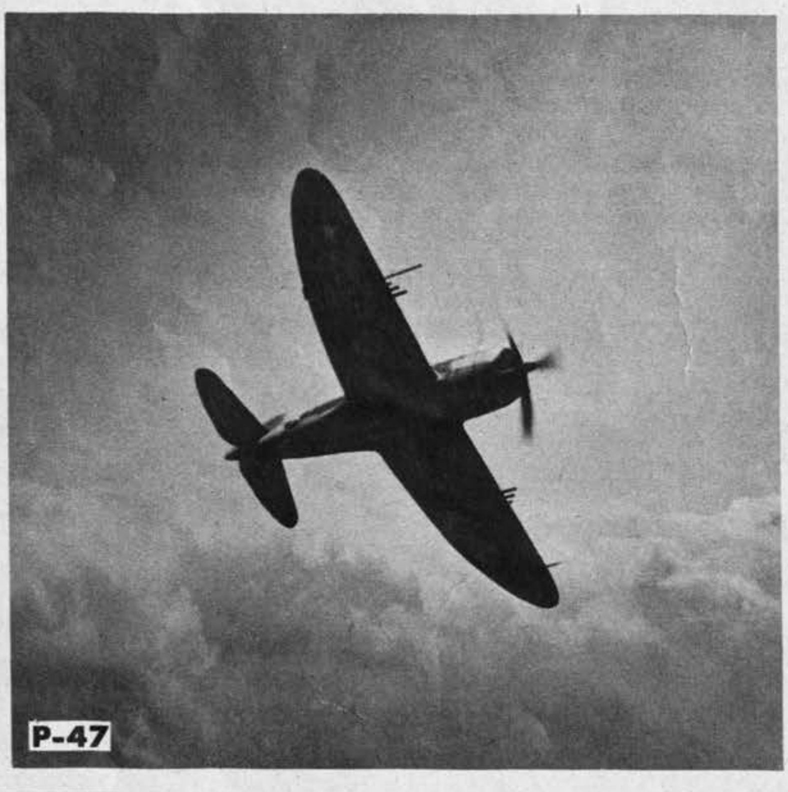

OSCAR

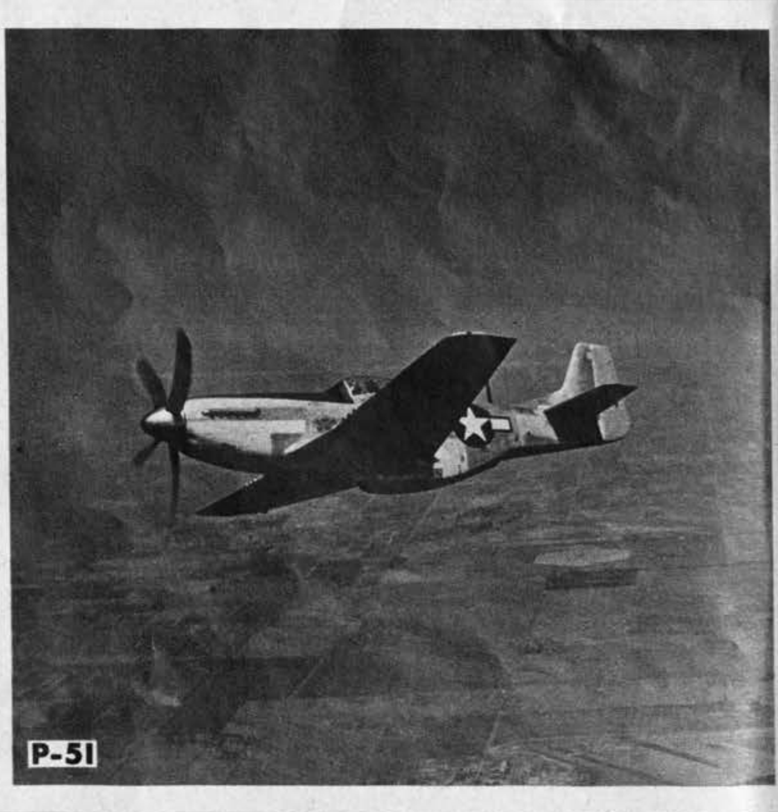

TOJO

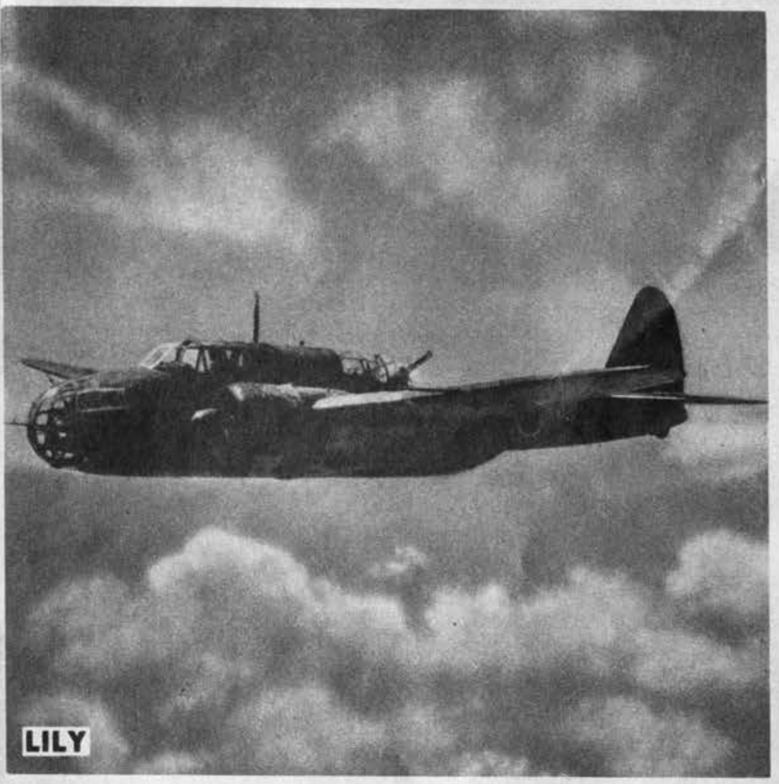
SINGLE ENGINE

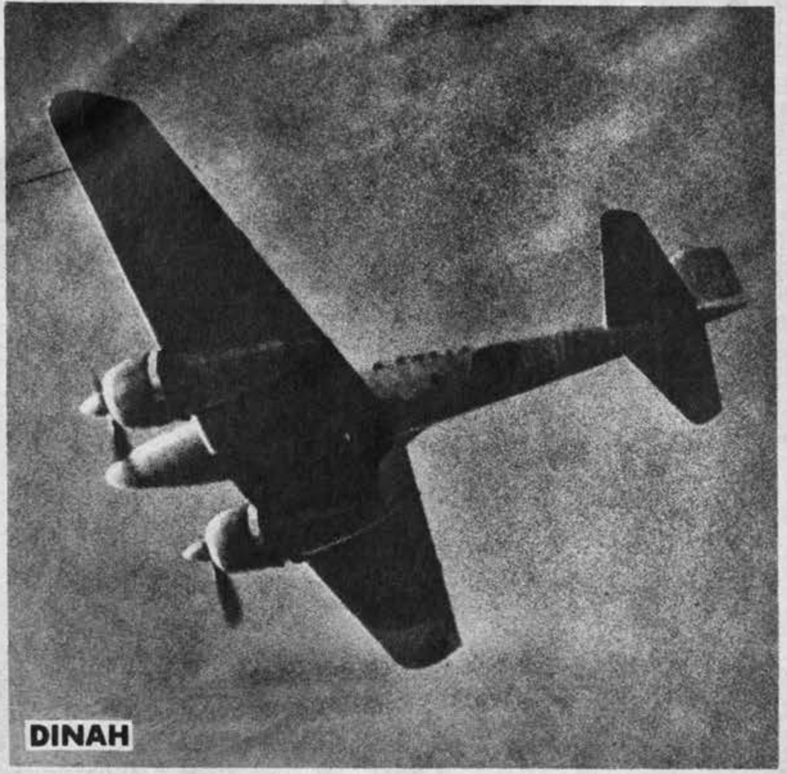
Oscar, Tojo and Zeke illustrate the short nose, trim fuselage and bubble canopy typical of Japanese fighter planes. Although the wing's curved trailing edge on Tojo is somewhat unusual, the plane emphasizes another characteristically Jap fighter feature—

U. S.

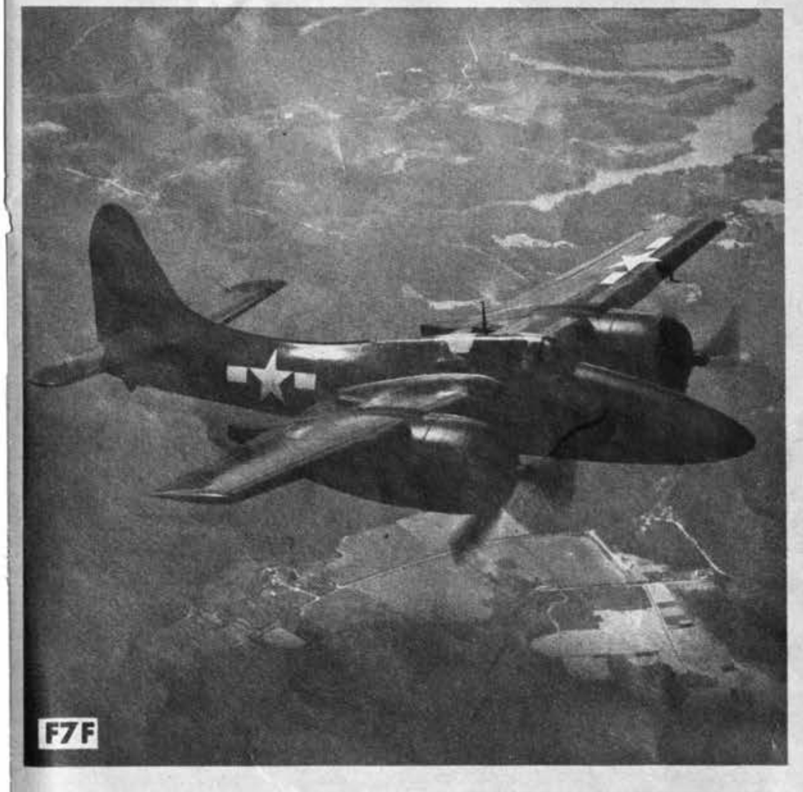

P-47

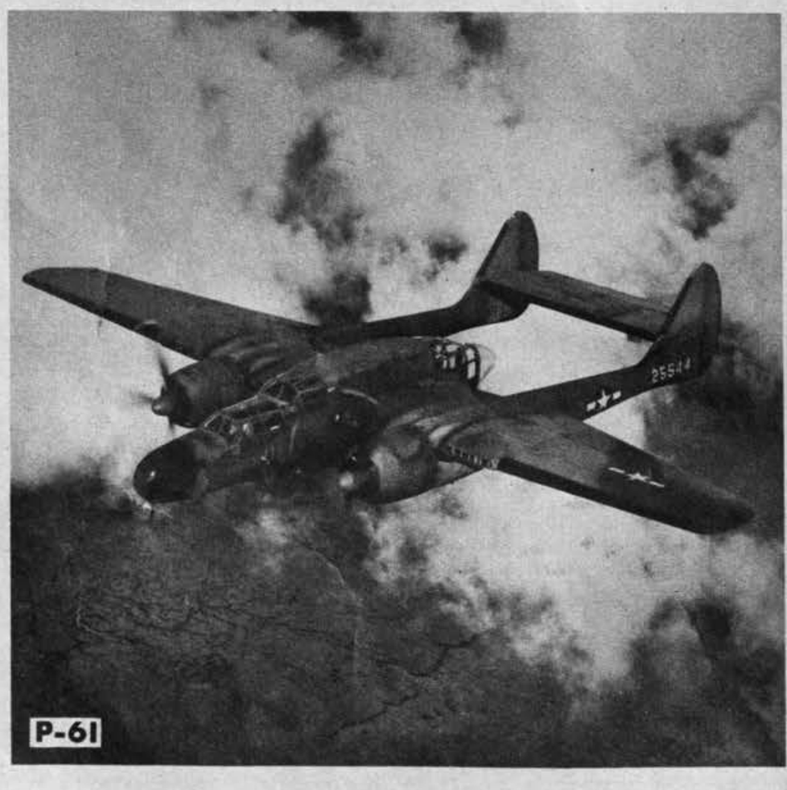

P-51

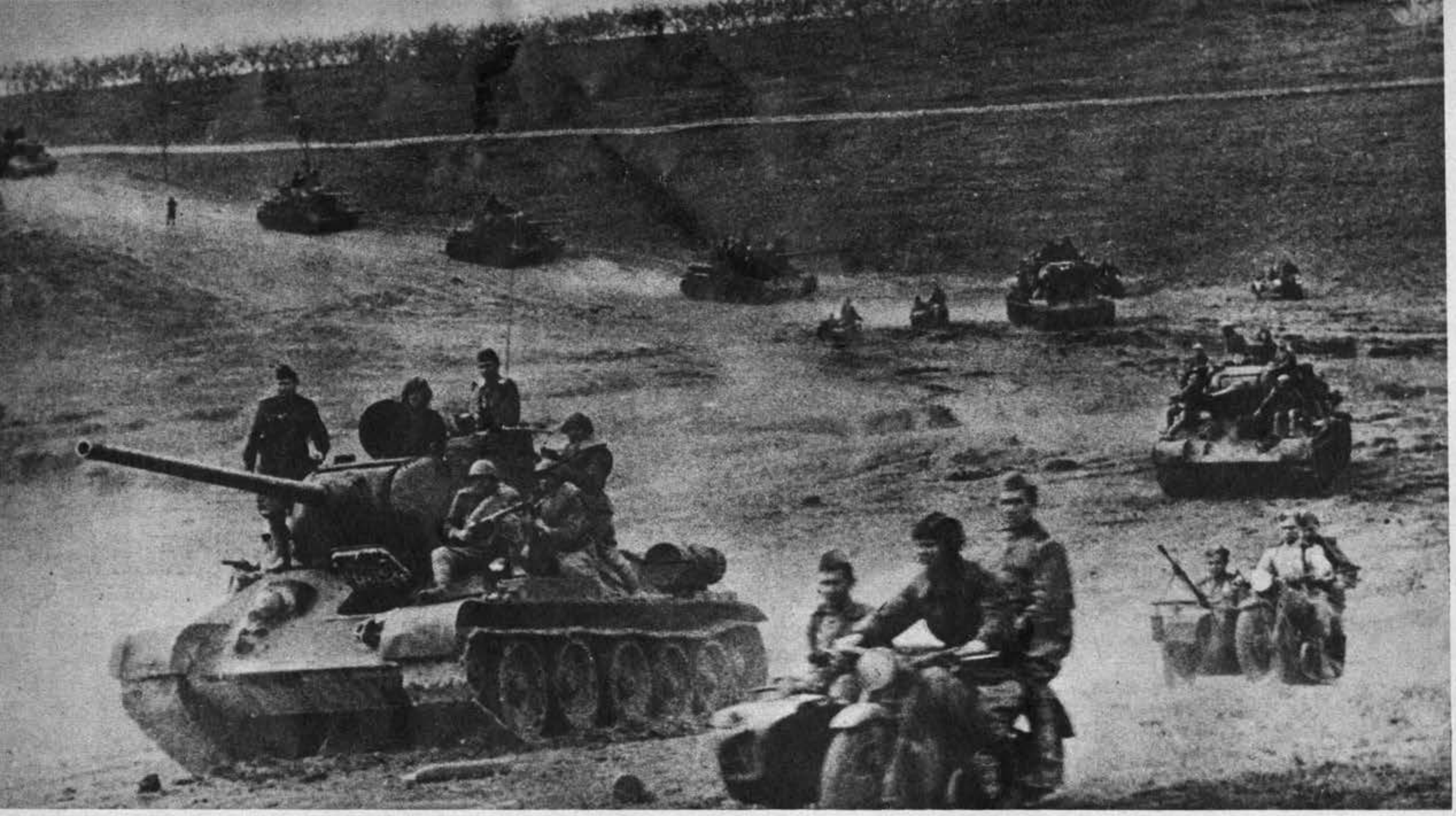

LILY


DINAH

extend beyond the wing's trailing edge (except imperceptibly on Dinah 3), and relatively short noses stand out in plan views. Except for Lily, fuselages have long, unbroken sweep. On U. S. twin-engine combat planes, wing is usually shoulder-high. Noses are long and, except on both PV's, nacelles stab cleanly behind the wing. U. S. tails are upswept except on the B-25 which differs from important Japs in its twin fin and rudder. All twin-boom planes are U. S. although the Japs may have a twin-boom pusher type.


F7F


P-61



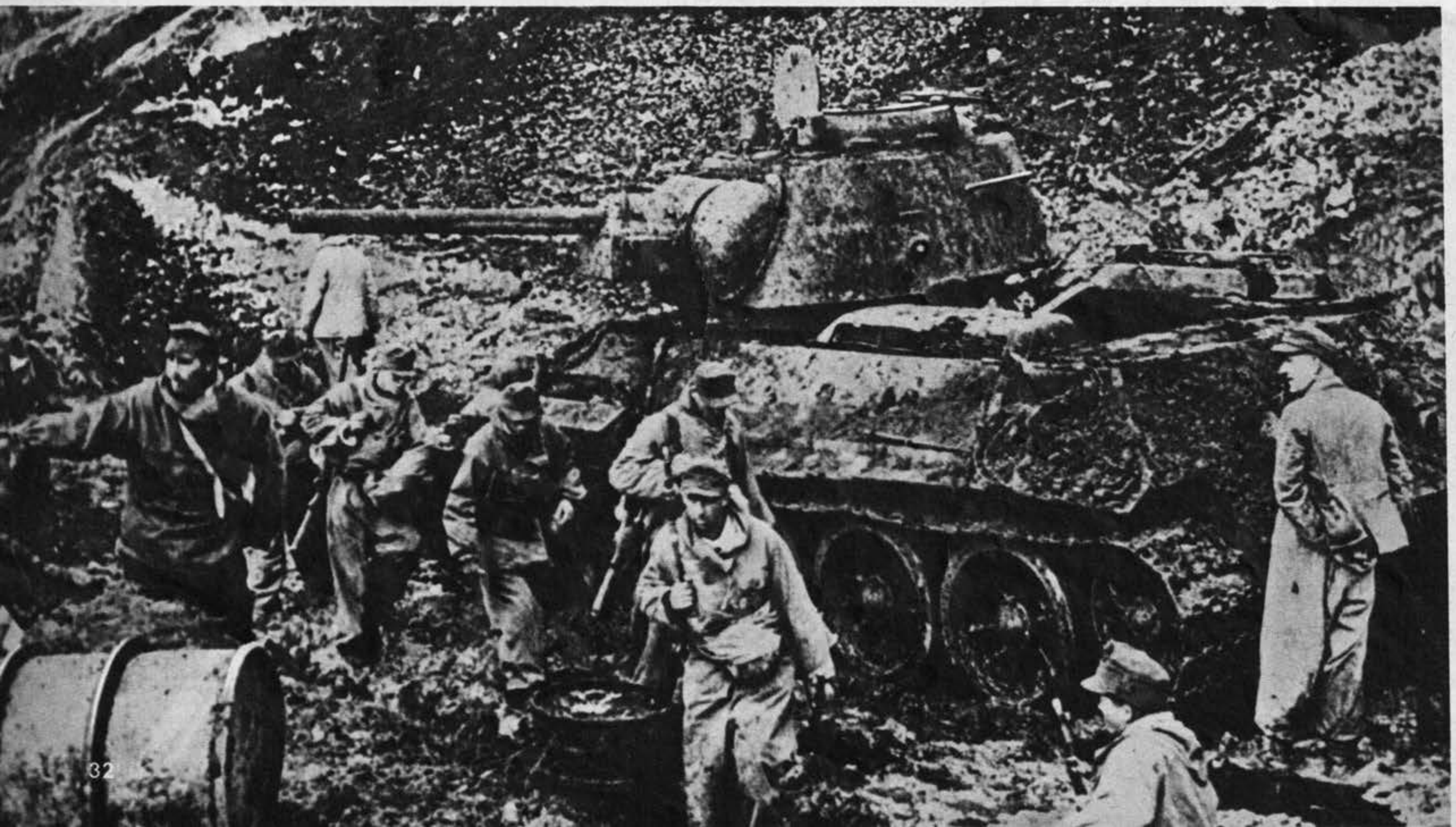
IMPROVED SOVIET T-34's APPEAR TO HAVE NEW TYPE TURRET MOUNTING A LARGER, MORE POWERFUL GUN CHASSIS APPARENTLY IS UNCHANGED

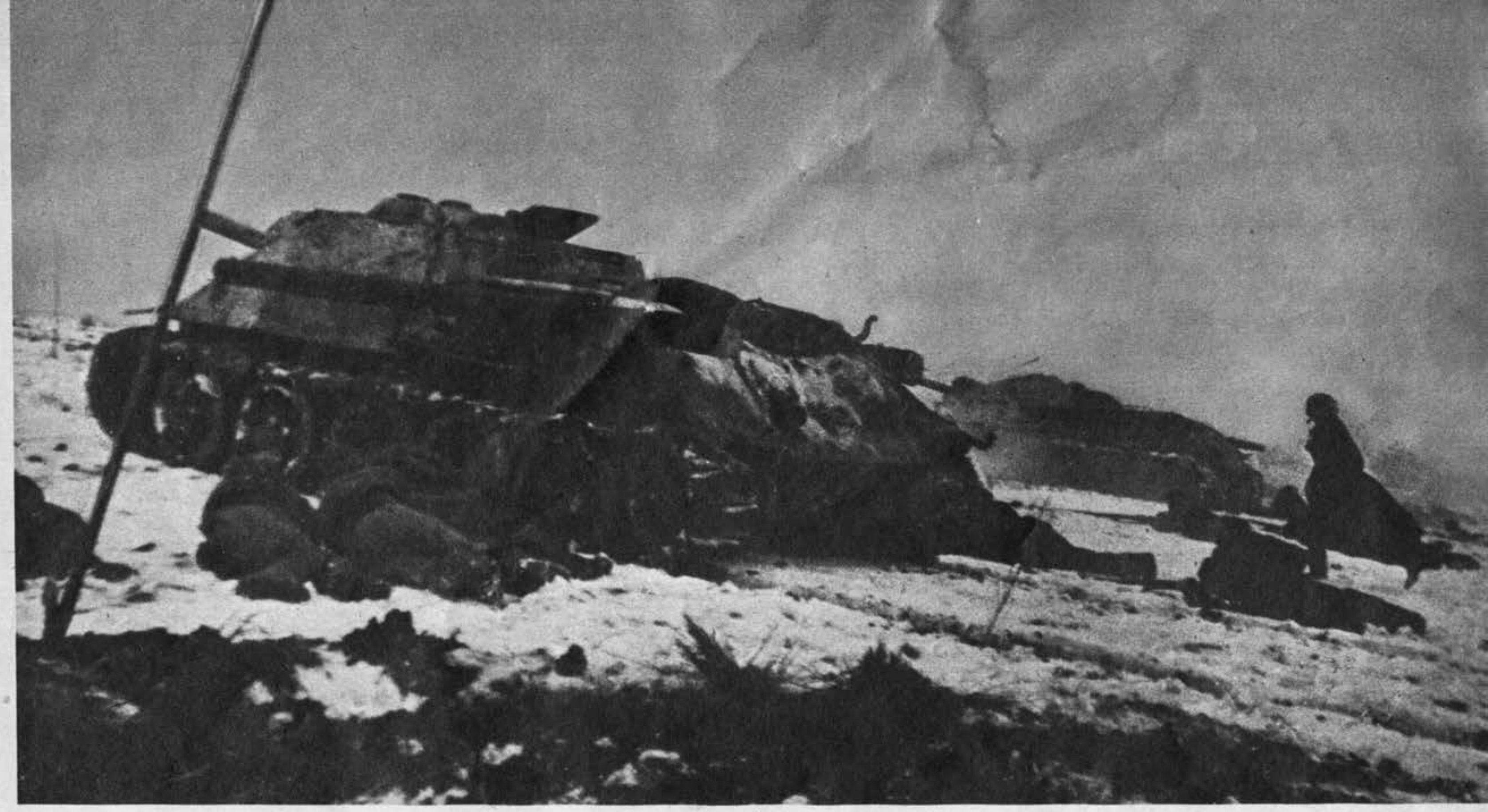
SOVIET TANKS AND SP GUNS

On Jan. 12 the Red Army surged into what has been called the greatest land offensive of all time. Richly equipped with armored vehicles, the Russians bulled their way west of the Vistula, swept toward Cracow, then overran Nazi defenses from East Prussia to the Carpathians as five Soviet armies strove for final victory. By the middle of February they stood 30-odd miles from Berlin, were threatening both Saxony and Germany's Baltic coast. German communiqués spoke of overwhelming Russian superiority in men and matériel, claimed that new armor with 122-mm. guns, called Joseph Stalin, was destroying highly touted King Tigers.

Aside from several new types of Soviet SP artillery, the most powerful Soviet armor now in action is the KV-85 tank, the latest

VISION CUPOLA, TWIN PERISCOPES AND BULGING GUN MANTLET MARK AN EARLIER T-34 TURRET. THE WHEELS, ORIGINALLY DISK, ARE NOW RIBBED





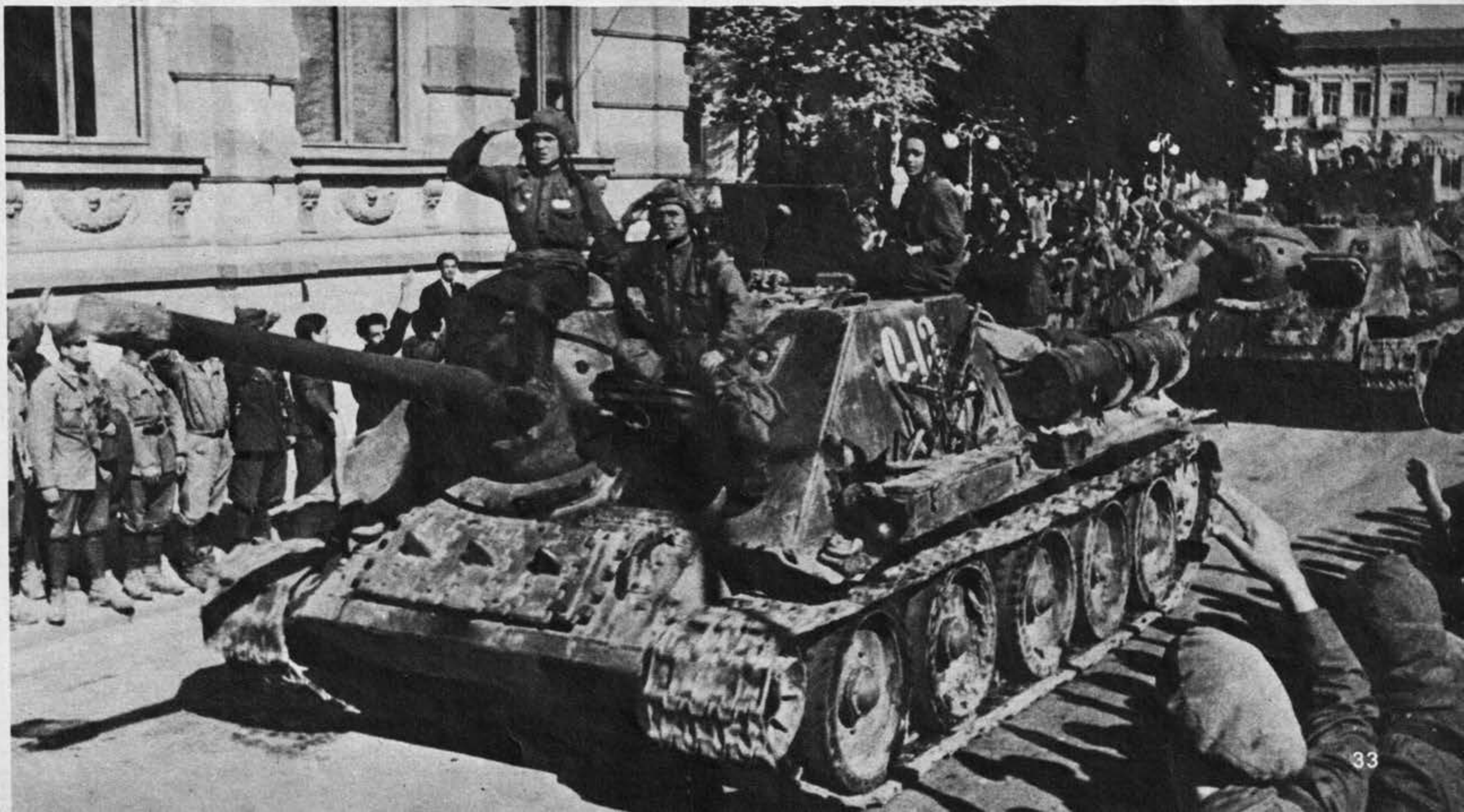
AN SP 122-MM. HOWITZER IS PROTECTED BY INFANTRY. ITS T-34 CHASSIS CARRIES THE LARGE, ANGULAR FIGHTING COMPARTMENT WELL UP FRONT

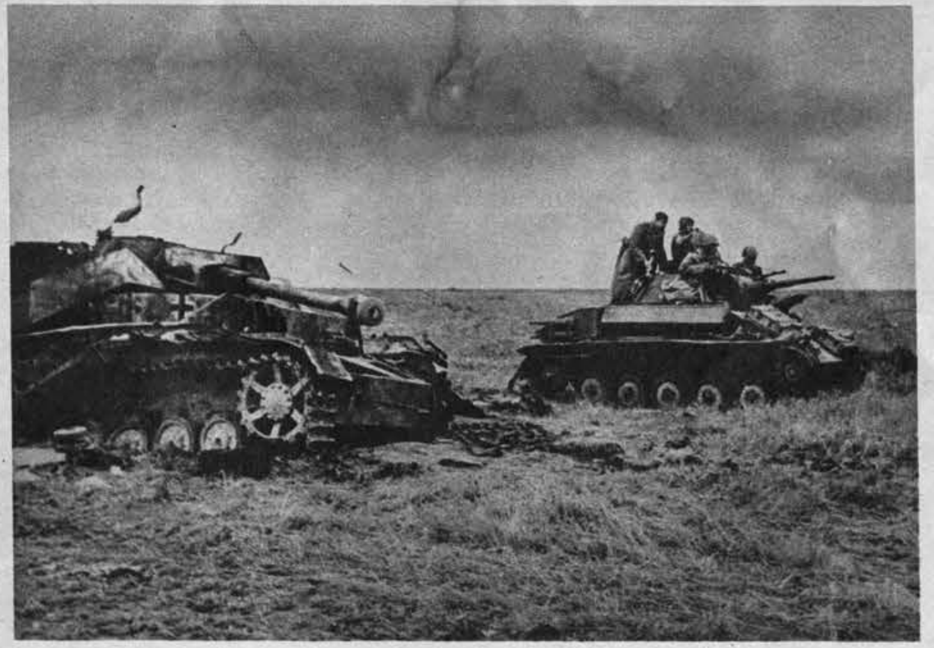
in the heavy KV series. It gets its number from its long 85-mm. gun which gives it great firepower. The big KV chassis, with its six bogies and three prominent return rollers, also serves as a mount for the 122-mm. gun and the 152-mm. gun howitzer.

The standard Soviet medium tank is the T-34 in several models. The chassis for the various models are identical except for the bogies, of ribbed pressed steel in the later versions, and can best be distinguished by the Christie suspension and long, smooth glacis plate sharply angled at the bow. The turrets, however, are different. That on new models is longer and carries its long-barreled gun in a cast mantlet with no visible recoil housing. In addition a cupola has been added. Older T-34 turrets have angular recoil housing. Since its first appearance the T-34 has been one of the war's finest medium tanks and its clean lines and forward turret impressed the Germans sufficiently to be copied for their Panther. Two SP guns can be seen on the T-34 chassis: a short 122-mm. howitzer (*above*) and a long-barreled 85-mm. gun (*below*).

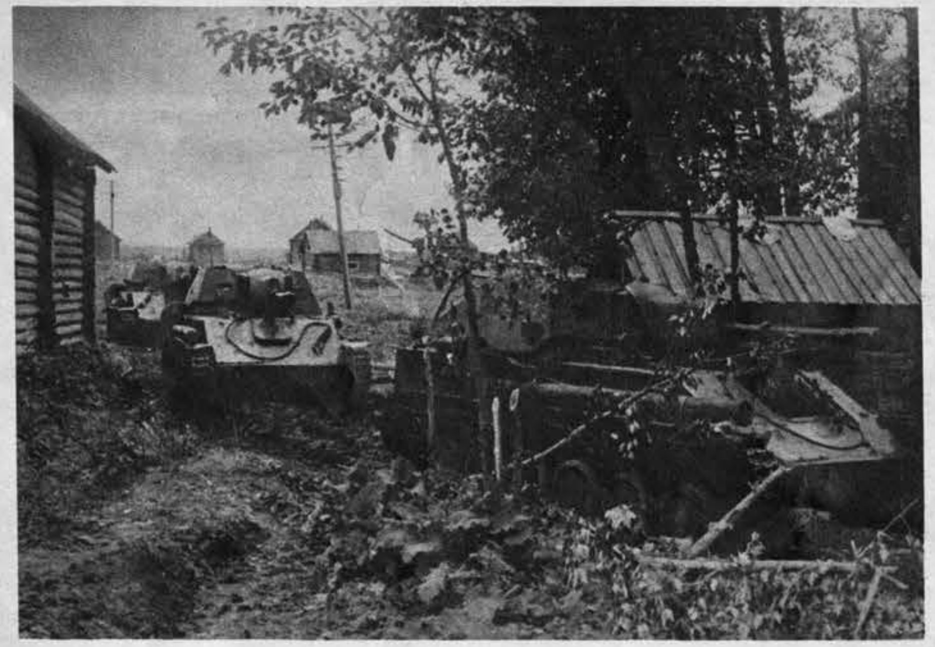
Russia's standard light tank is the ten-ton T-70, powered by two Ford V-8 engines and armed with a 45-mm. cannon. It can be recognized by its long, sloping front plate and a modified Christie suspension like that of the U. S. M-18. A T-70 chassis with a sixth bogie wheel is the carriage for a 76.2 mm. SP antitank gun. In keeping with the Russian practice of supporting tanks with SP guns, the T-70 and 76.2-mm. SP gun are frequently seen together.

THE 85-MM. SP TANK DESTROYER HAS LONGER GUN AND OFF-CENTER MANTLET. LOW SILHOUETTE COMPARES FAVORABLY WITH NEW NAZI GUNS

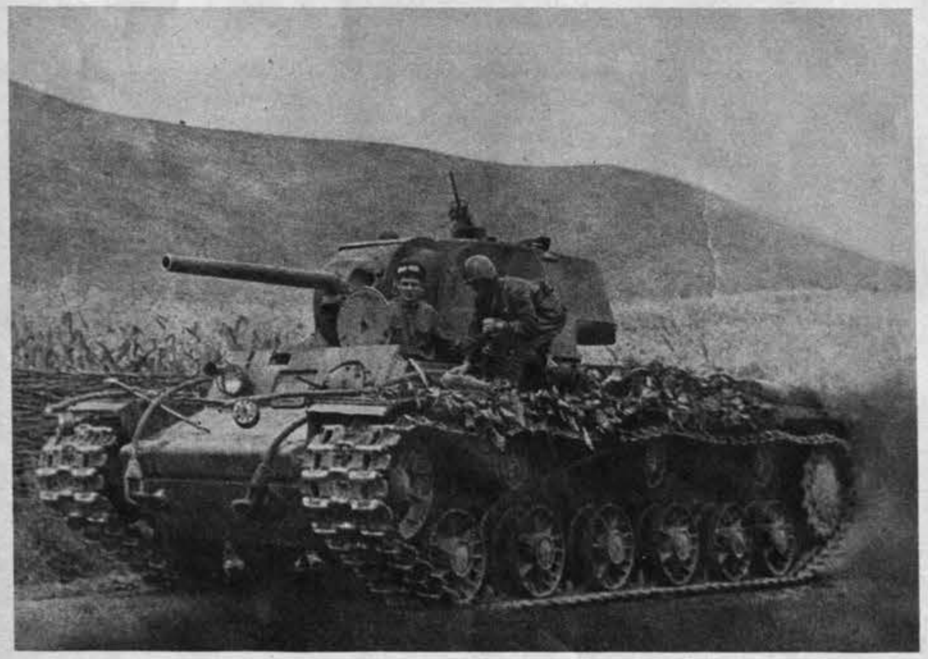




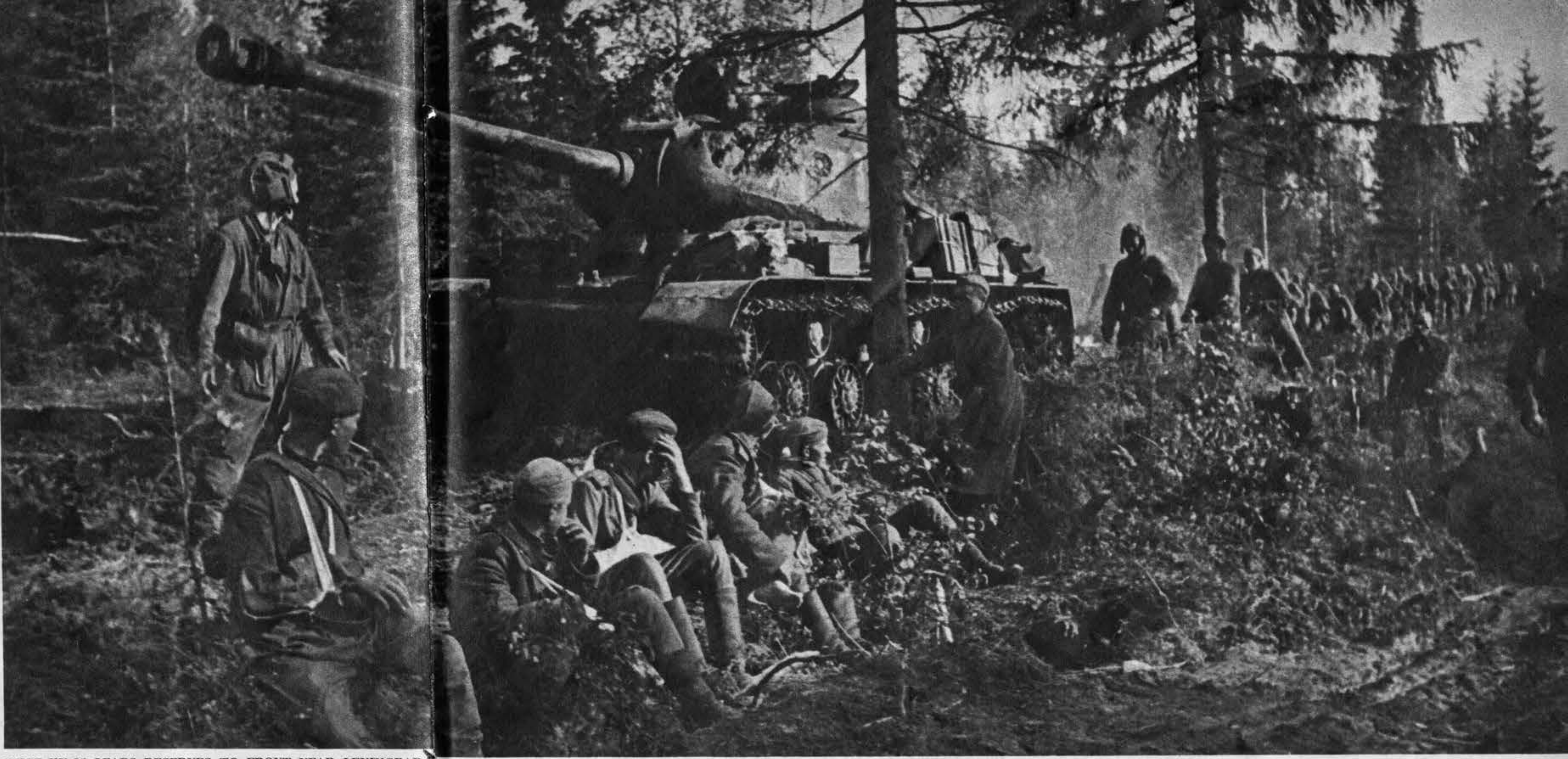
T-70 light tank rolls past the wreck of a Nazi PzKw IV. Only Russian tank with a front sprocket drive, T-70 has five bogies, three return rollers and wide gun mantlet.



Red tank destroyers park outside a Karelian village. A sixth bogie wheel has been added to T-70 chassis to carry rear fighting compartment and 76.2-mm. antitank gun.

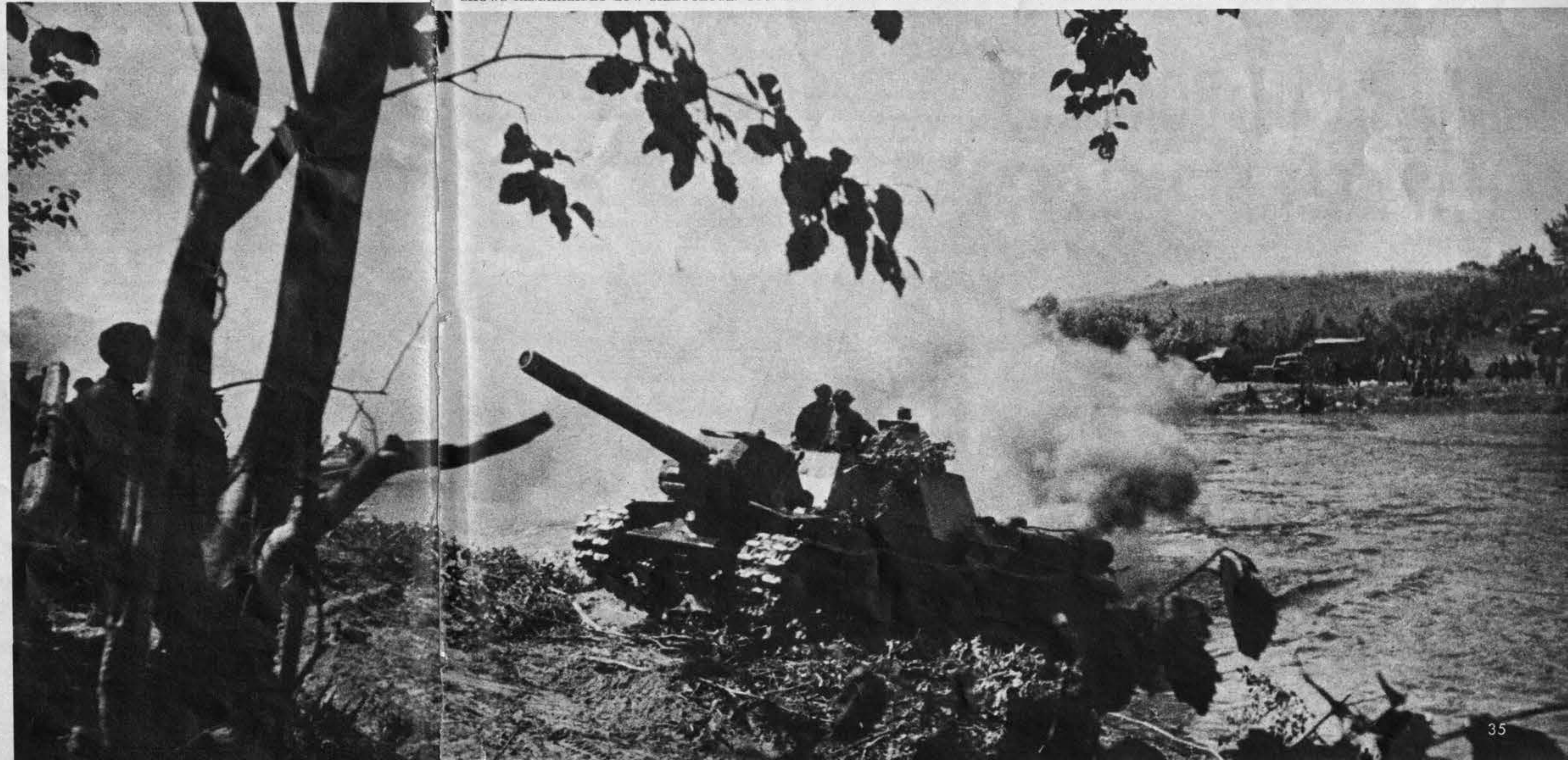


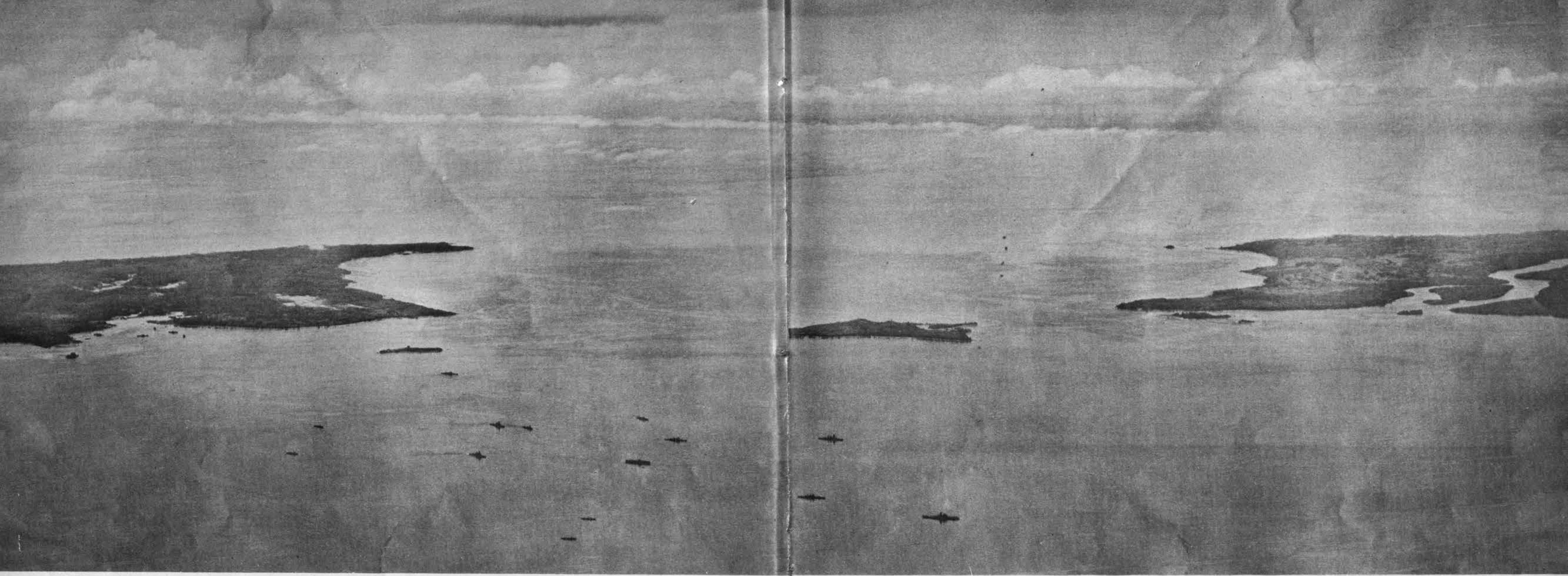
Original KV design is shown by KV-1 with its six big bogies, three return rollers and large, blocky turret. KV-1's helped repel the German threat to Moscow in 1941.



HUGE KV-85 LEADS RESERVES TO FRONT NEAR LENINGRAD. LONG, STREAMLINED TURRET HOUSES AN 85-MM. GUN WITH MUZZLE BRAKE. AS ON ALL OF THE LARGER SOVIET TANKS, DRIVING SPROCKET IS AT REAR

EMERGING FROM STREAM, THIS 152-MM. SP GUN HOWITZER SHOWS REMARKABLY LOW SILHOUETTE. FIGHTING COMPARTMENT IS SET AT FRONT OF KV CHASSIS AND HEAVY MANTLET PROTECTS THE BIG GUN





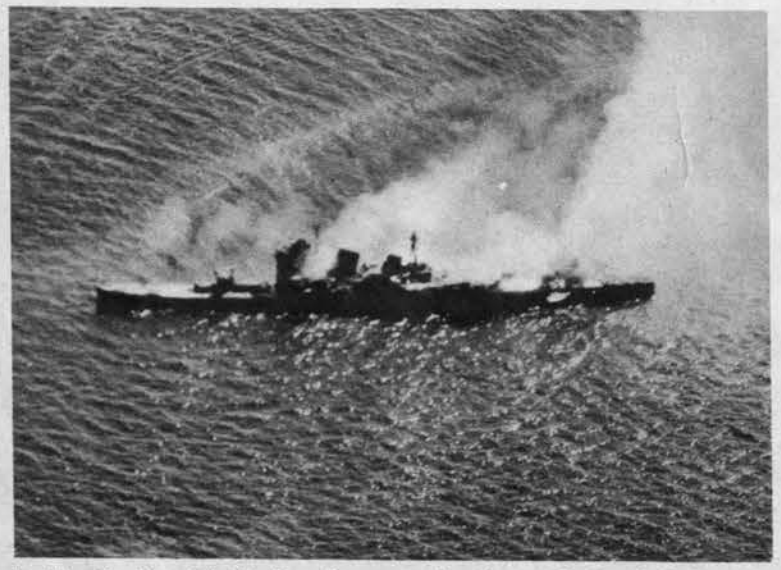
AFTER PHILIPPINE SEA BATTLE, SCOUTING BOMBER RECORDED RENDEZVOUS OF DEFEATED JAP FLEET IN BRUNEI BAY. BATTLESHIP YAMATO (RIGHT) IS FIRING (NOTE ACK-ACK BURSTS). OTHER SHIPS ARE NAGATO CLASS BB, HAYATAKA CLASS CV, TWO KONGOS, THREE CA's, TWO CL's, FOUR DD's.

AMERICAN BOMBERS HARASS JAP FLEET

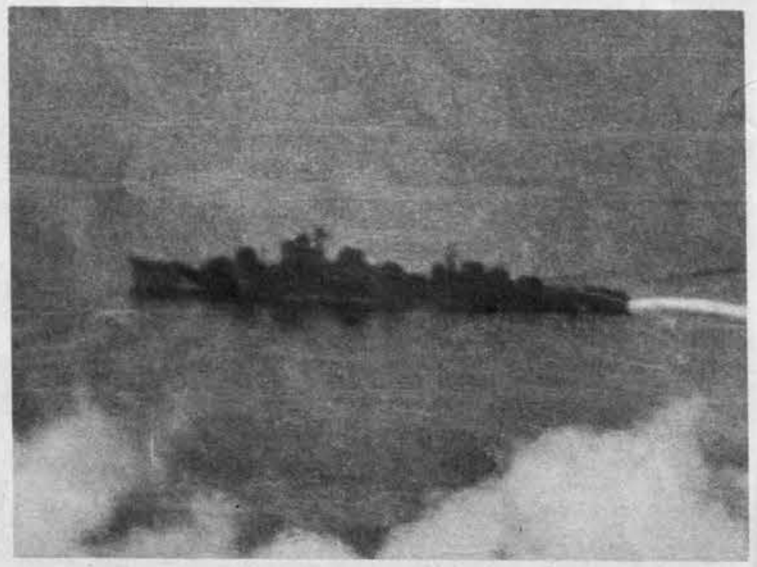
Striking pictures of important Jap warships continue to pour in from the intensive campaign now being waged in Philippine waters and the China seas. Now that the Pacific front has been pushed close to Japan itself, the enemy can no longer hide behind the tremendous distances which separated his movements and matériel from our forward bases. Reconnaissance planes, both Army and Navy, are able to reach the Japanese Navy's inner bases and catch photographic glimpses of shifting major units.

Perhaps the most remarkable of the many pictorial reports brought in by these long-range scouts is the panorama printed above. This vast view of Brunei Bay in North Borneo shows the remaining portion of the Japanese fleet which attacked our Leyte covering forces through San Bernardino Strait. Reinforcements including a carrier had joined up with this force.

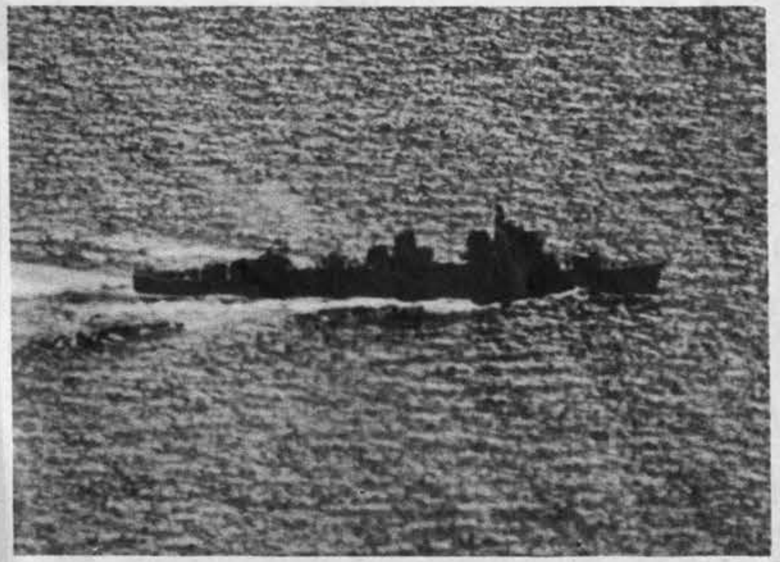
In the Philippine theater, Third Fleet aerial cameras brought in a fresh, dramatic set of Japanese warship views—sequel to the great wealth of recognition material gathered during the Second Battle of the Philippine Sea. In the softening-up period before we went ashore on Luzon, carrier task forces ranged freely out of their advanced island bases. Manila Bay and other Japanese anchorages were hammered repeatedly from the air; convoys attempting to reinforce beleaguered Japanese garrisons were brought under slashing attack. Four of the numberless ship targets pounded by the Third Fleet during these intensive sweeps are pictured below.



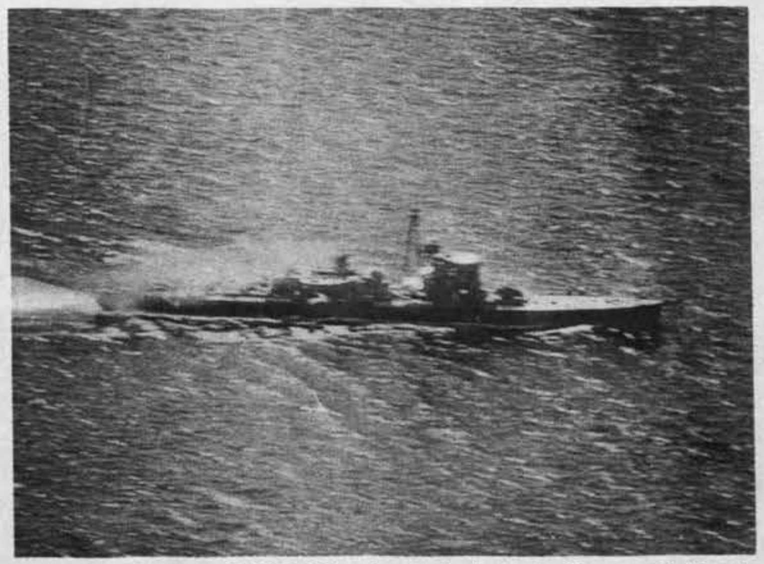
In Manila Bay, Nachi Class heavy cruiser burns furiously before being sunk by torpedoes. Nachis have flat-faced bridge, two raking stacks.



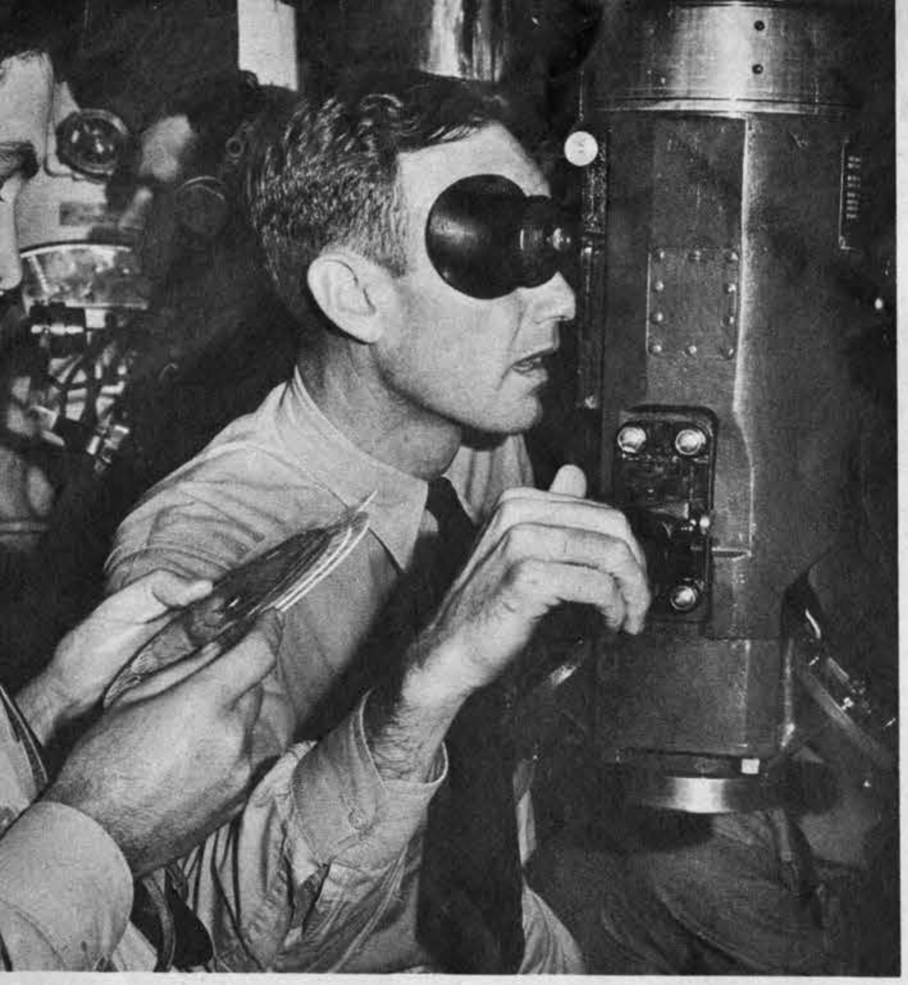
Weaving Terutsuki ducks behind smoke screen. Large and powerfully gunned, Terutsukis are heavy in profile, have single trunked stack.



Heavy platforming around stacks, elevated AA position forward of the bridge set modern Takanami Class apart from older Jap destroyers.



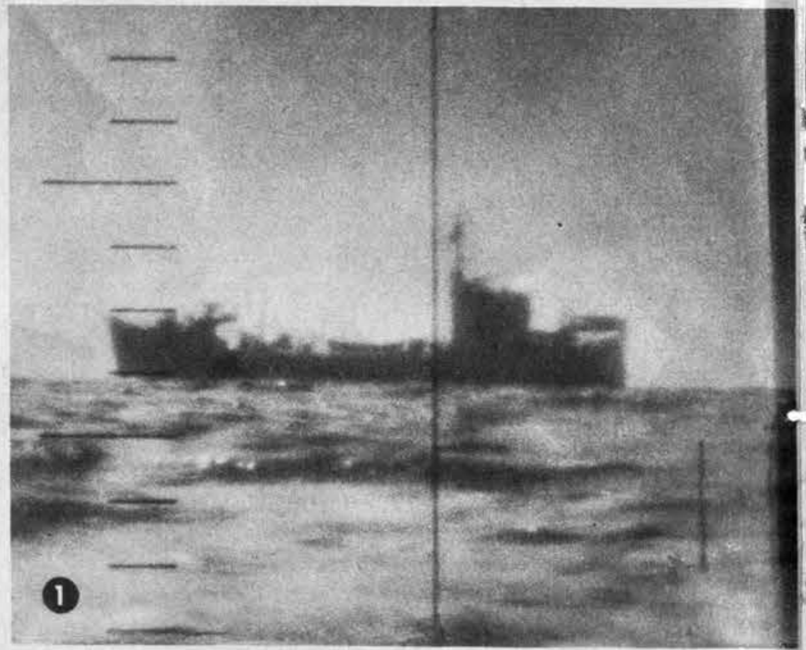
Large subchaser of PC-1 Class has a flush deck. Compact bridge is widely separated from stack which is always amidships on Jap PC's.



QUIZ NO. 3: A SUB'S EYE VIEW

Prowling through coastal waters not yet approached by surface vessels of the Navy, U. S. submarines are in a position to see numerous enemy merchant types including those which do not venture into the open sea. Submarines also serve as extremely valuable fleet scouts. In the Second Battle of the Philippine Sea, they were the first to spot Forces B and C of the Japanese Navy.

Equipped to photograph their victims at various stages of the attack, U. S. subs have provided excellent picture coverage of Jap shipping. The quiz on these two pages shows an interesting cross section of the enemy's war and merchant fleets as encountered in the U. S. undersea campaign. Answers will be given according to the JMST system, fully explained in the *Journal* for last January.



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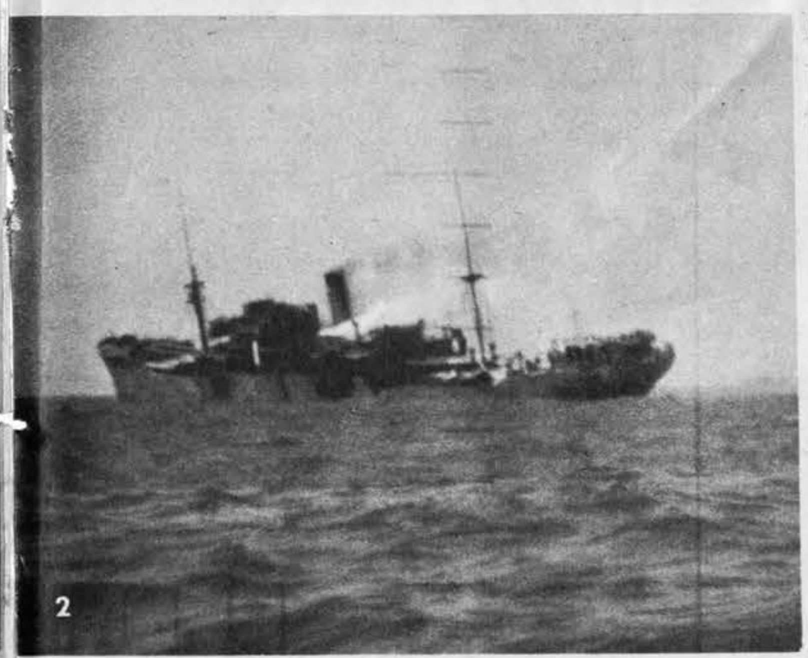

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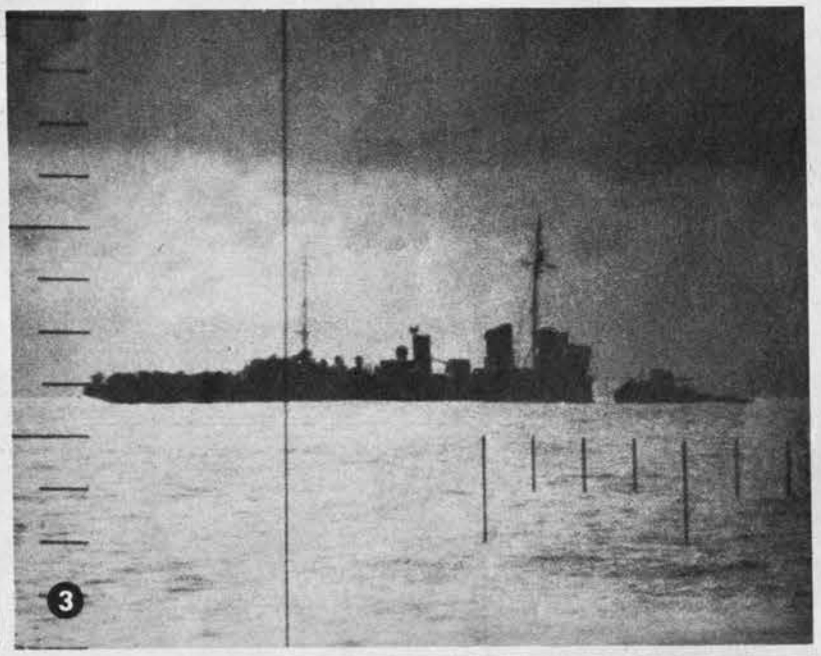

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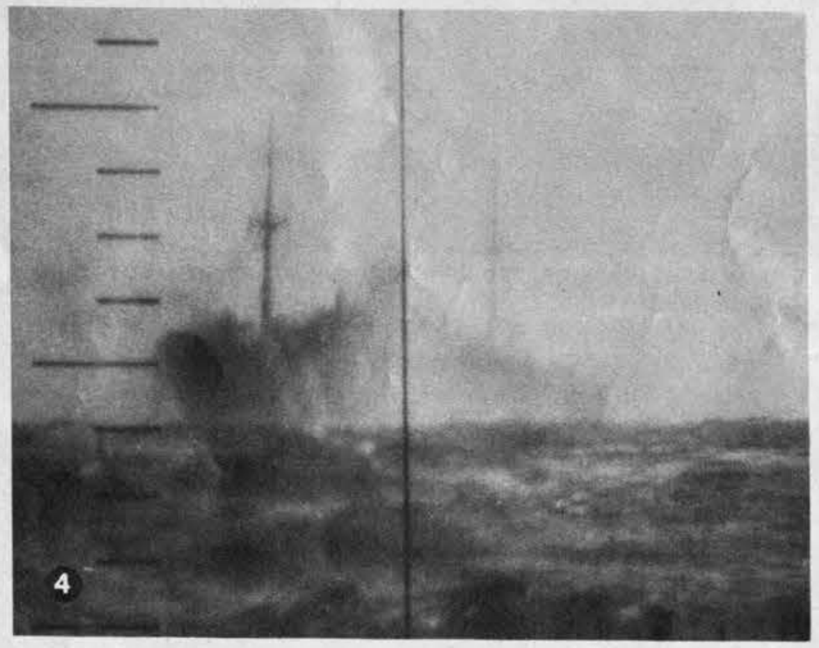

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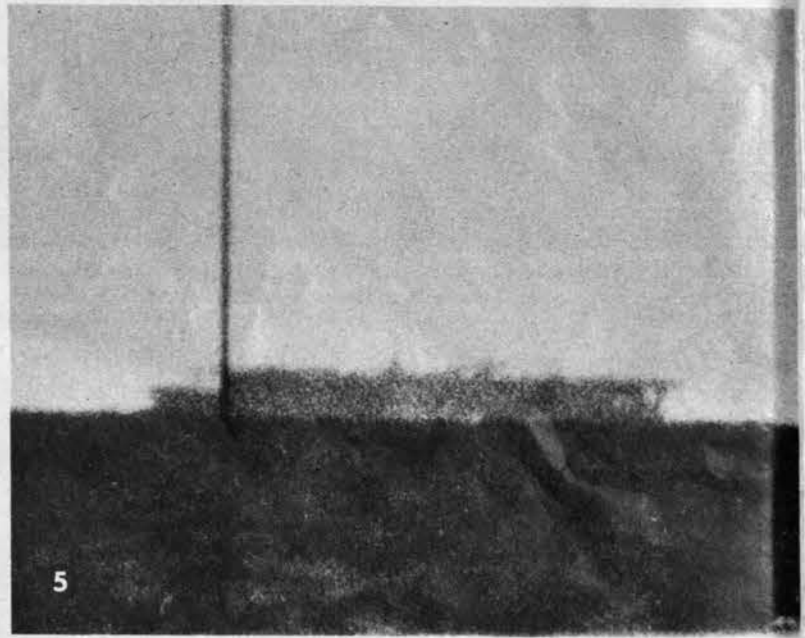

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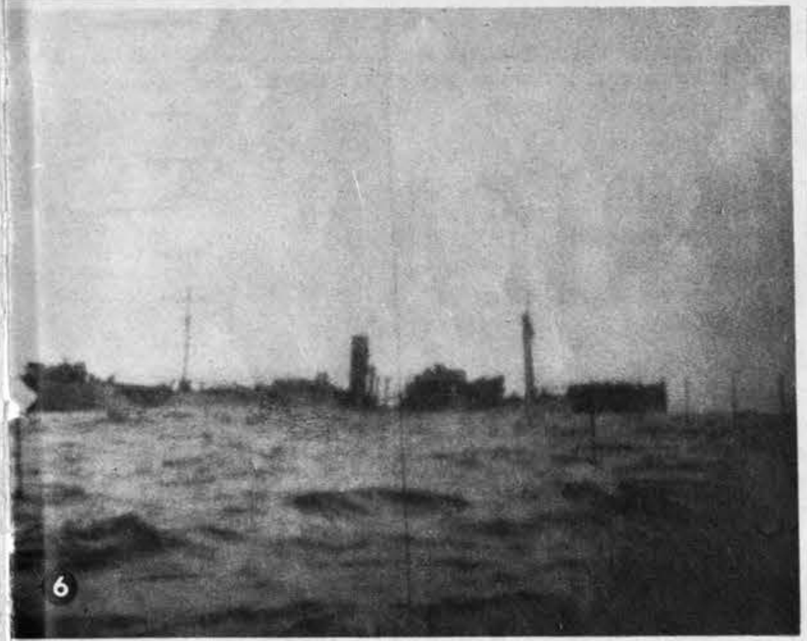

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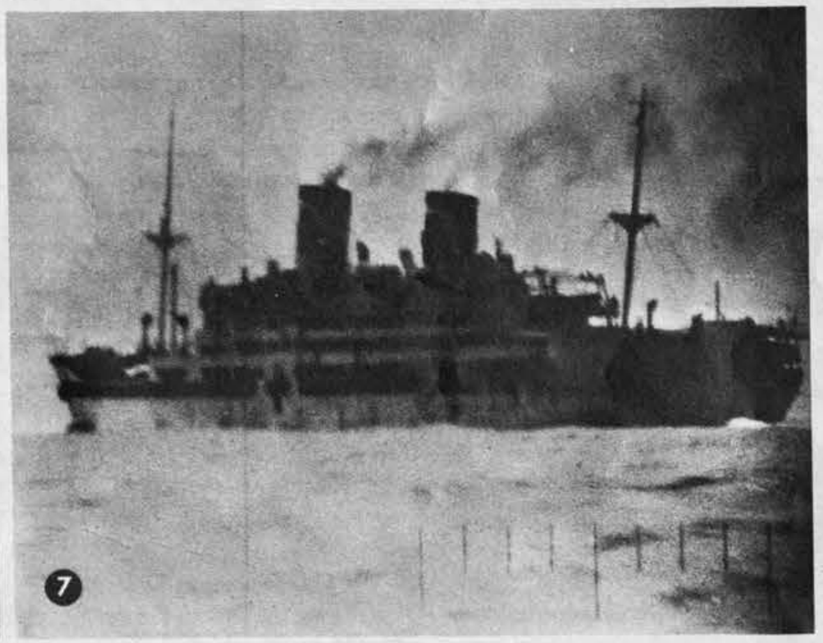

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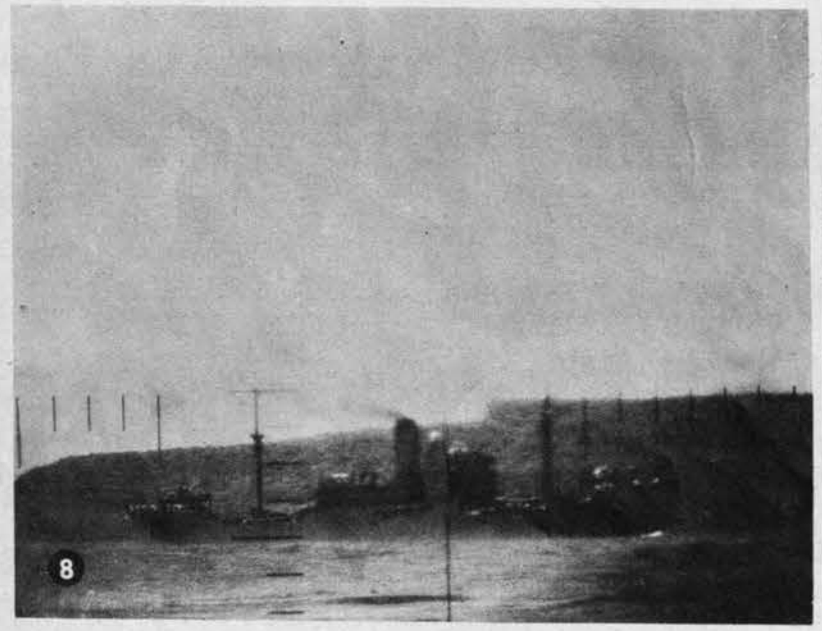

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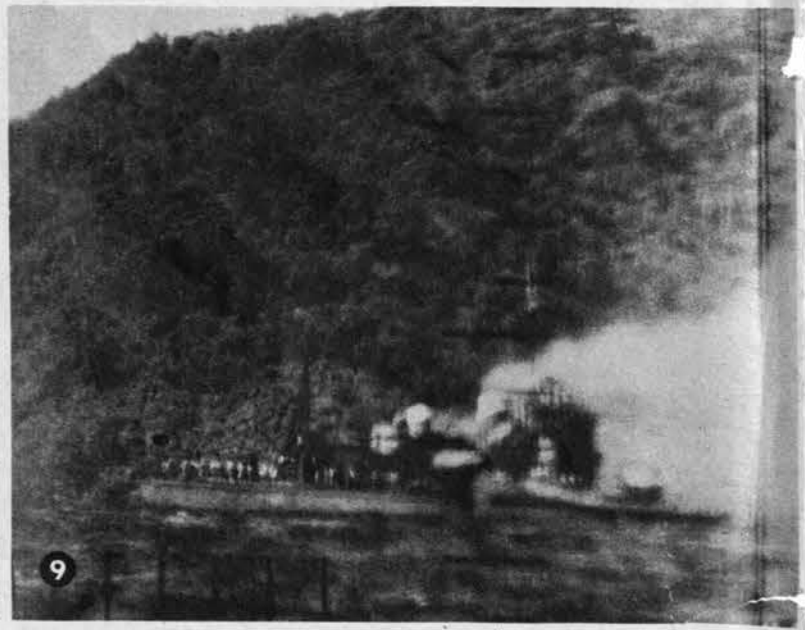

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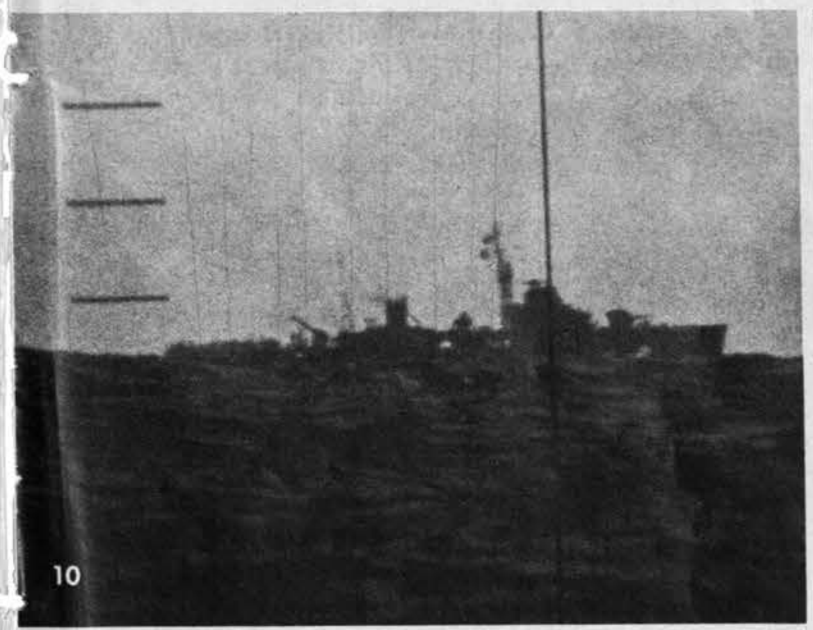

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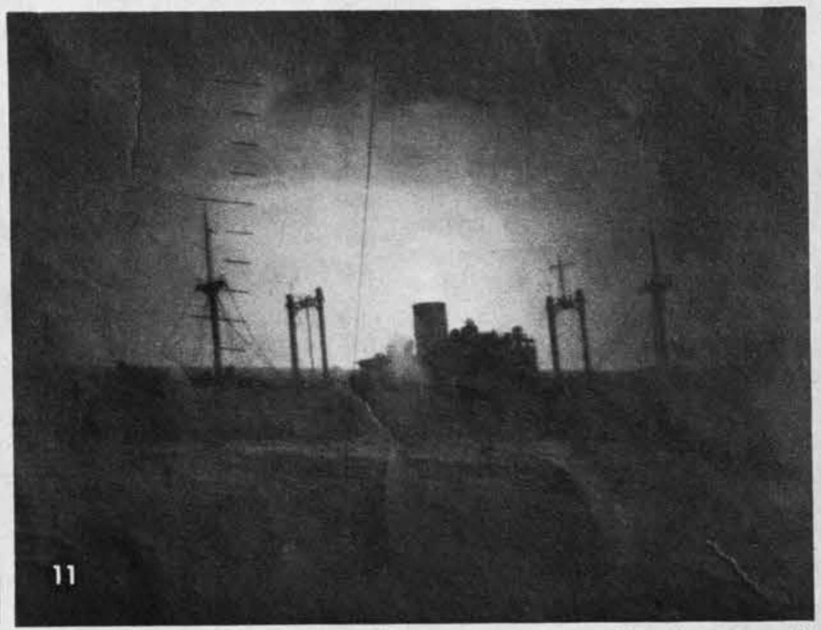
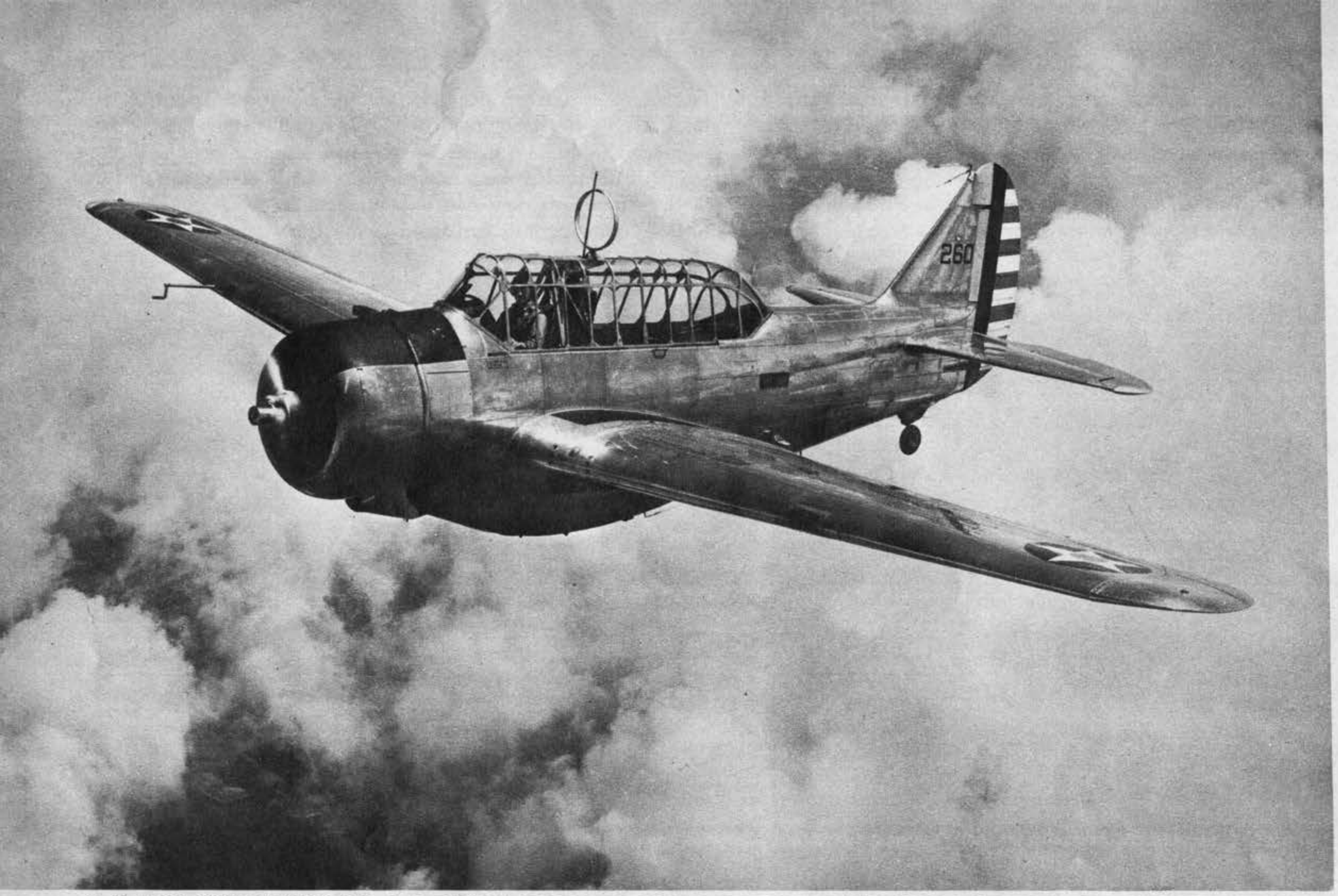


11

For answers see p. 48



U. S. ARMY OBSERVATION PLANE, O-47, WAS DEVELOPED FROM NORTH AMERICAN'S FIRST MODEL. A CAMERA BAY IS SET IN THE DEEP BELLY

NORTH AMERICAN

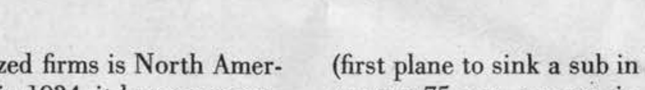
One of U. S. aviation's most specialized firms is North American Aviation, Inc. Since its origin in 1934, it has never produced a civilian plane. North American has, however, given the Allies the greatest number of advanced trainers, their most reliable medium bomber and one of the world's greatest all-around fighters to date.

North American's first product was the GA-15, begun by the General Aviation Manufacturing Corp., of which North American was the holding company. Completed by North American in 1935, this plane became the U. S. Army's well-known O-47 (*above*). Also produced in 1935 was the NA-16, a low-wing, two-seat basic trainer which sired North American's entire trainer line—the BT-9, BC-1, BT-14, Australia's Wirraway, the AT-6 and its Navy version SNJ. These planes, together with other NA-16 variations have been flown by student pilots of 28 foreign nations.

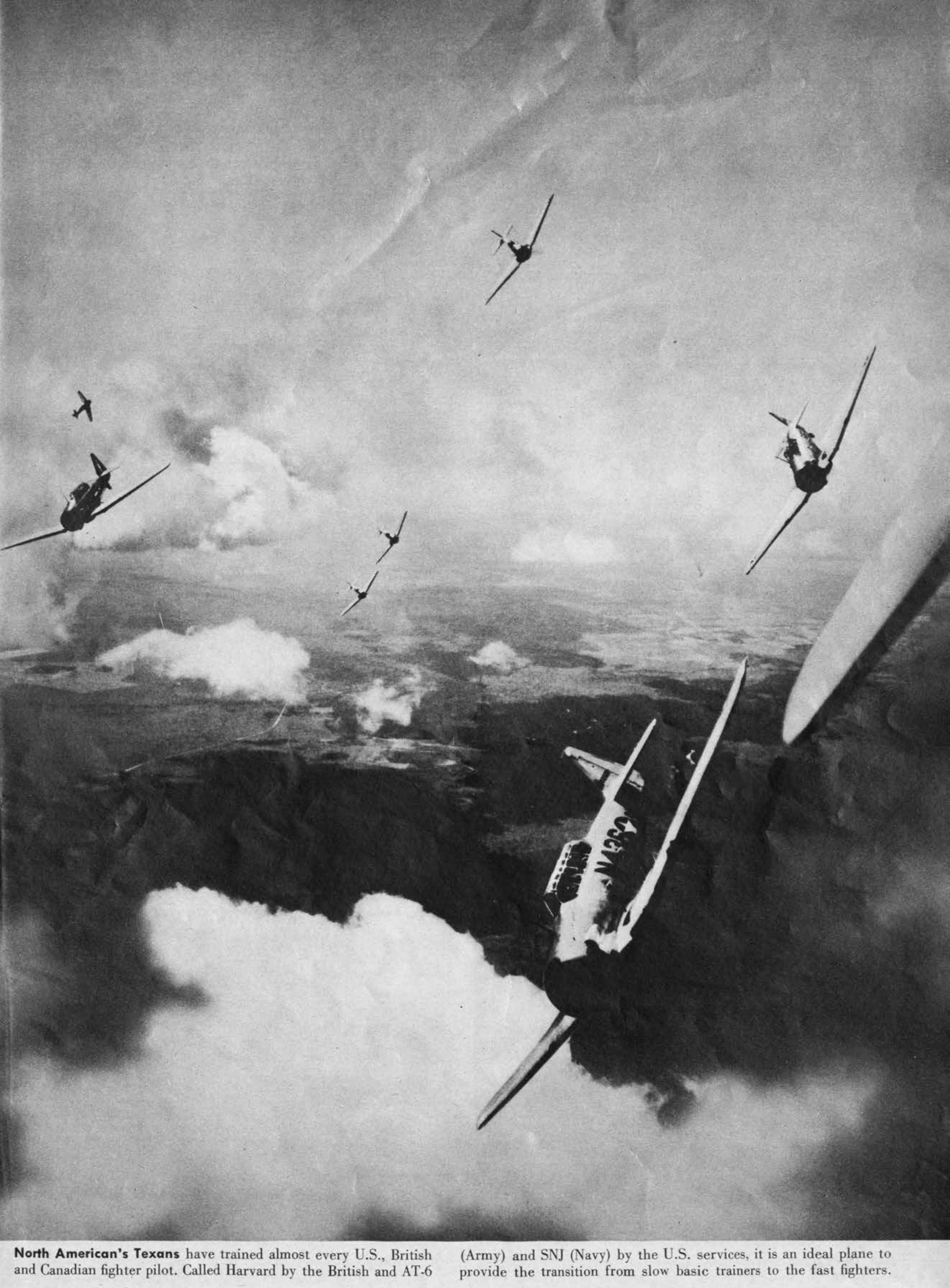
In 1938 the NA-40, grandfather of B-25, appeared. It had B-25's familiar tail but the wing was high and the fuselage considerably deeper. The B-25 came along in 1940. Except for increasing and rearranging armament, the Mitchell has undergone no major changes since then. With three firsts to its credit (first plane to sink a sub in U. S. waters, to bomb Tokyo and to carry a 75-mm. cannon in combat) it is still a star performer on all fronts. Though built as a medium-altitude bomber, it has amazing speed (330 m.p.h.) and agility at low altitudes.

With radial engines and horizontal inboard wing panels, North American's first single-engine fighters, the NA-50 and NA-68, followed the trainer types in basic design. But in 1940, in answer to an RAF plea, North American designed and built an entirely new fighter in 100 days. This was the great P-51 Mustang.

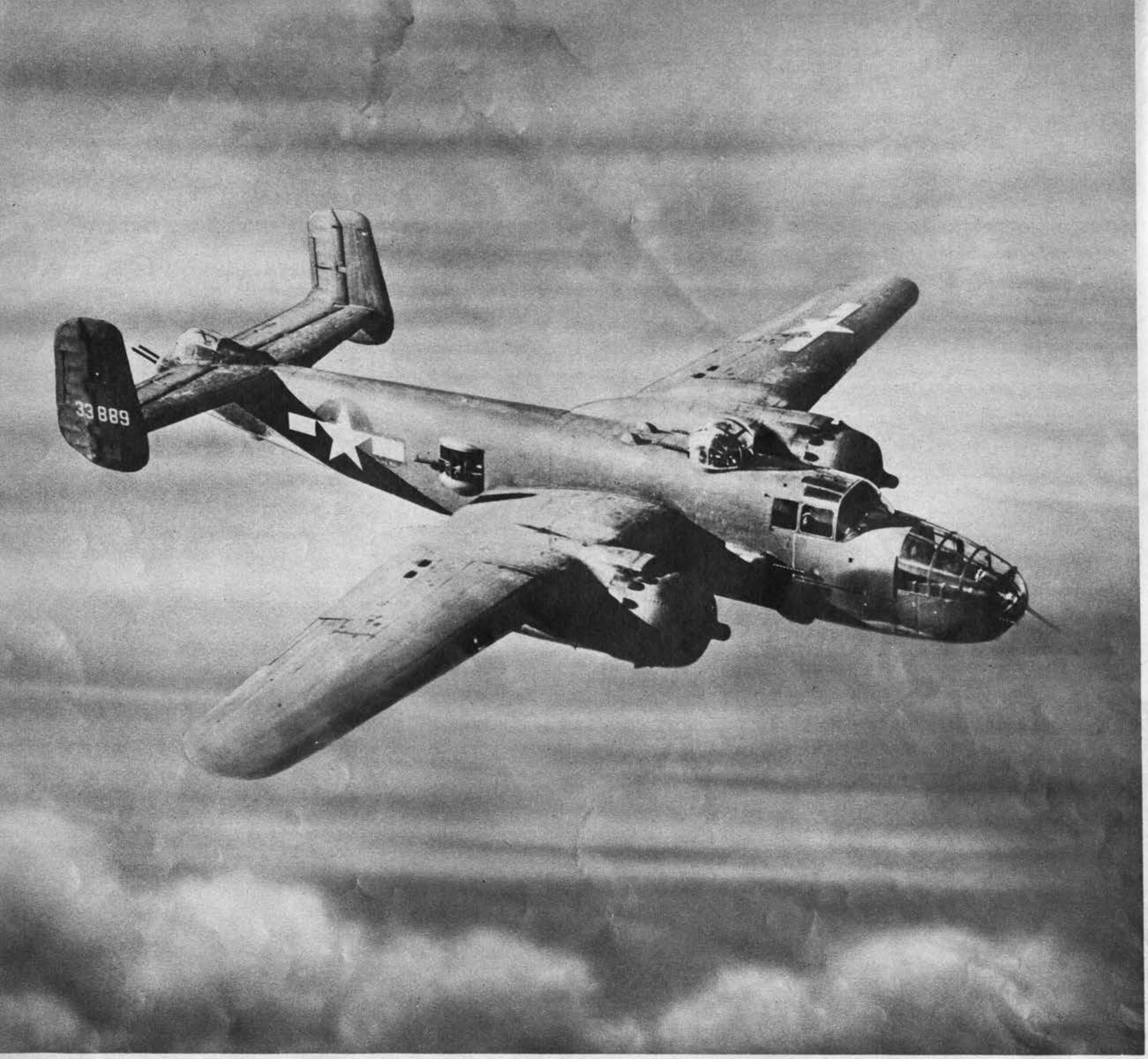
With its revolutionary laminar-flow wing and extremely slender fuselage, the Mustang was in the 400-m.p.h. class from the start. It made a fine showing over Dieppe, was later adapted for dive-bombing in Sicily as the A-36. In December 1943 Peter Masefield, British air expert, said that the Mustang was not only a great low-altitude plane but with a Merlin engine it would outstrip the Me-109G and Spitfire in the substratosphere. On Jan. 5, 1944 the first Merlin Mustangs escorted B-17's deep into Germany to open a new phase in the European air war. Flying in relays, U. S. fighters could accompany bombers all the way and blunted the threat of the Luftwaffe's rocket-launching planes.



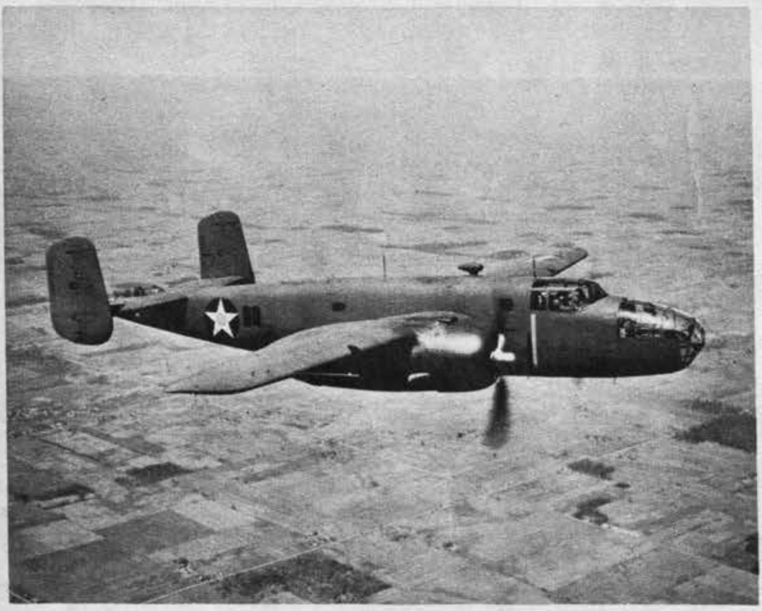
Australia's Wirraway is built from North American designs. Note the wing's sweepback and outboard dihedral.



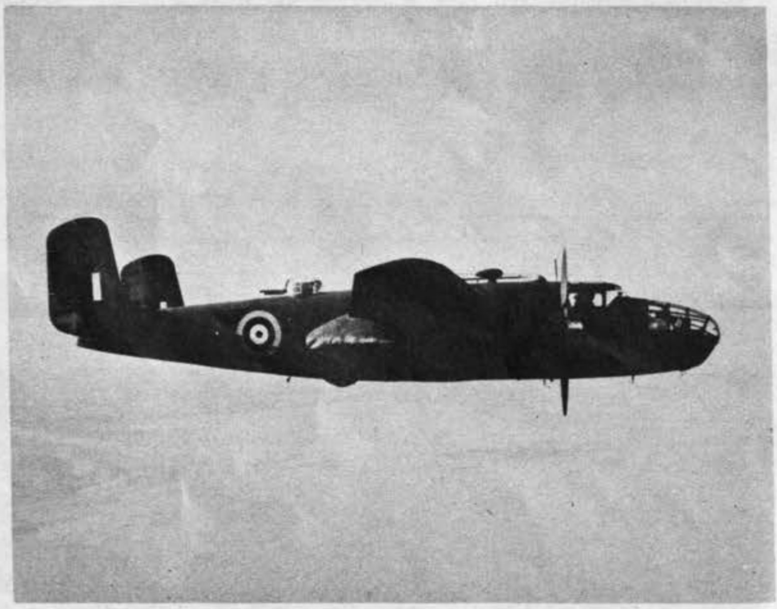
North American's Texans have trained almost every U.S., British and Canadian fighter pilot. Called Harvard by the British and AT-6 (Army) and SNJ (Navy) by the U.S. services, it is an ideal plane to provide the transition from slow basic trainers to the fast fighters.



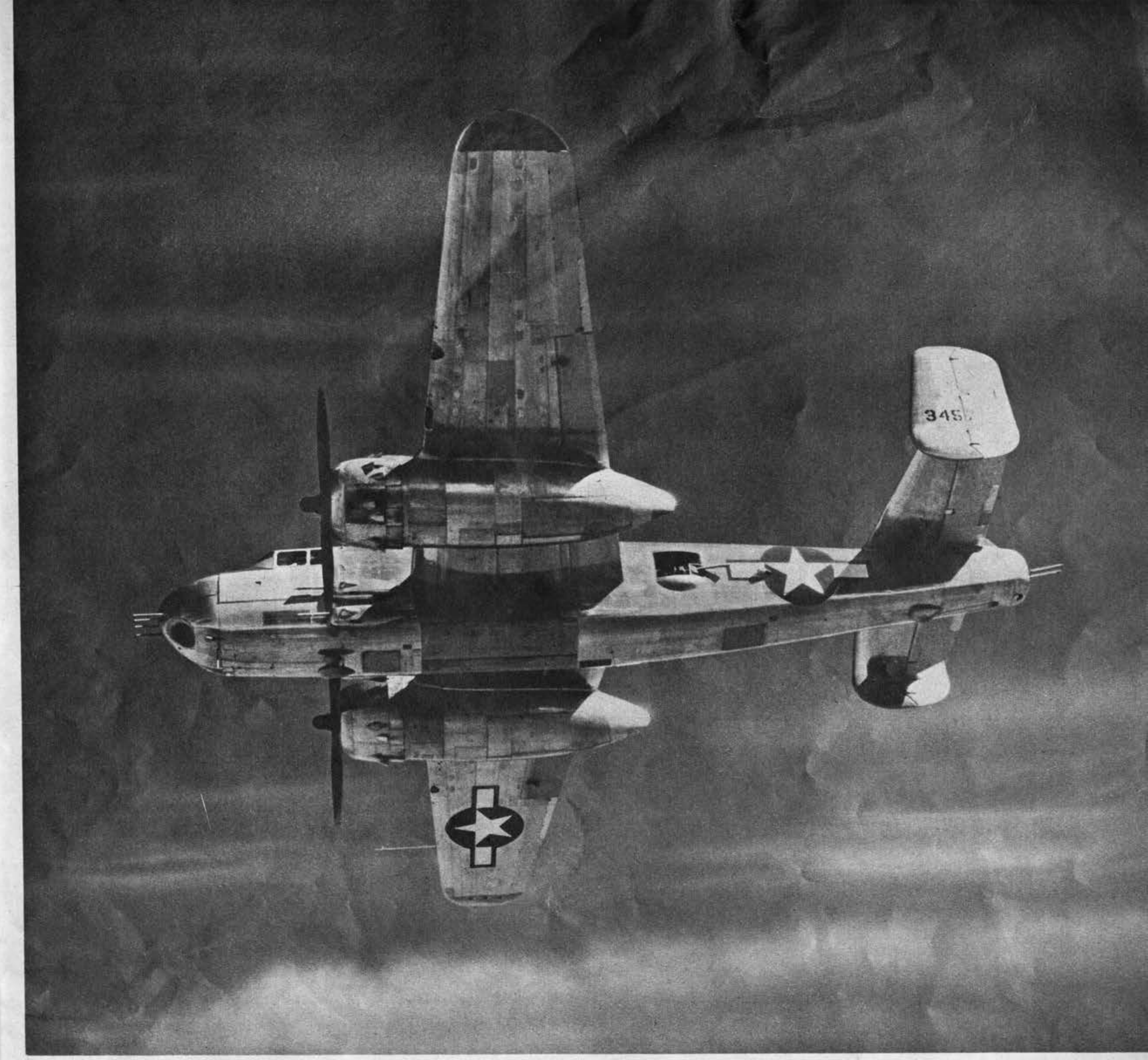
A recent Mitchell bomber is the B-25J with a raised tail gunner's position, casemate waist guns and top turret set forward of the wing. The latest B-25J has a solid nose packing eight machine guns, giving the plane a total of 18, 14 of which fire forward for strafing attacks.



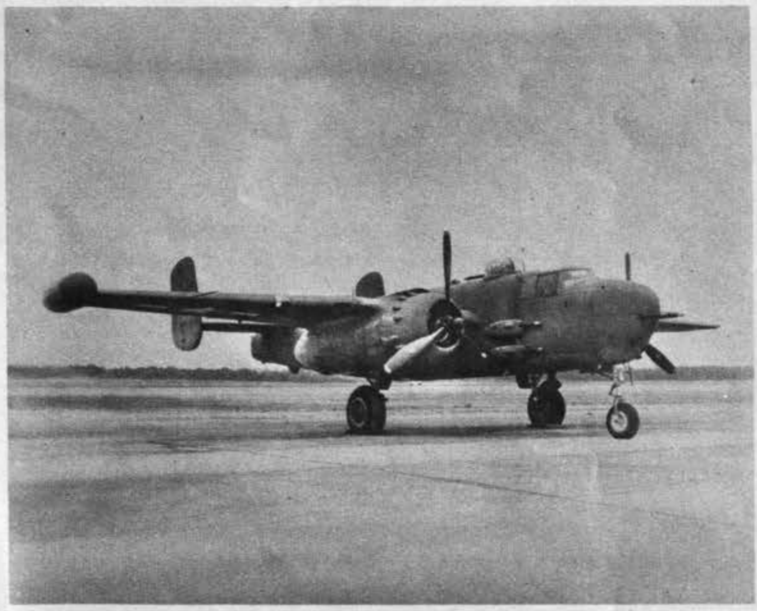
Without its guns, first production model of the B-25 gives unbroken view of angular fins and rudders, straight dorsal line and gull wing.



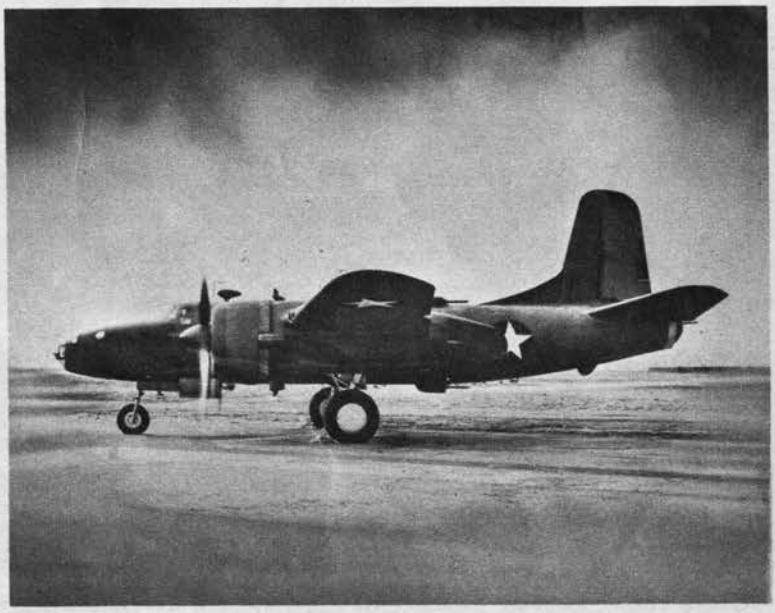
RAF's Mitchell II, like USAAF's B-25C, had belly turret but no tail stinger. Dorsal turret was about halfway between the cabin and tail.



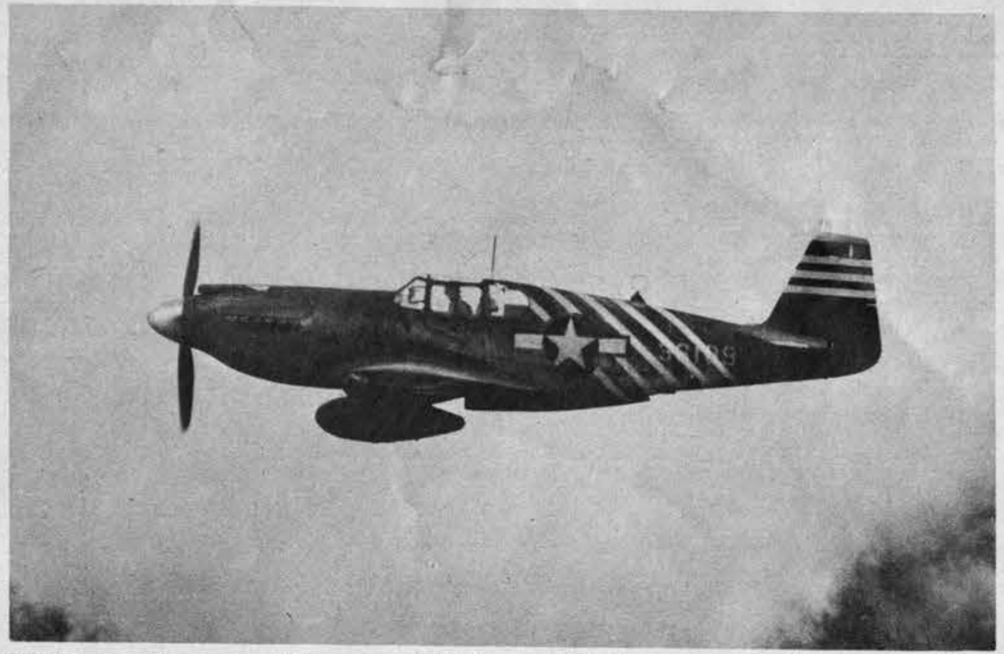
Attack version of the Mitchell is B-25H with four machine guns and 75-mm. cannon. Ten additional guns in turrets, waist and side packages make B-25H one of the world's most heavily armed airplanes. The B-25H also serves as a bomber with a B-25J plotting bomb run.



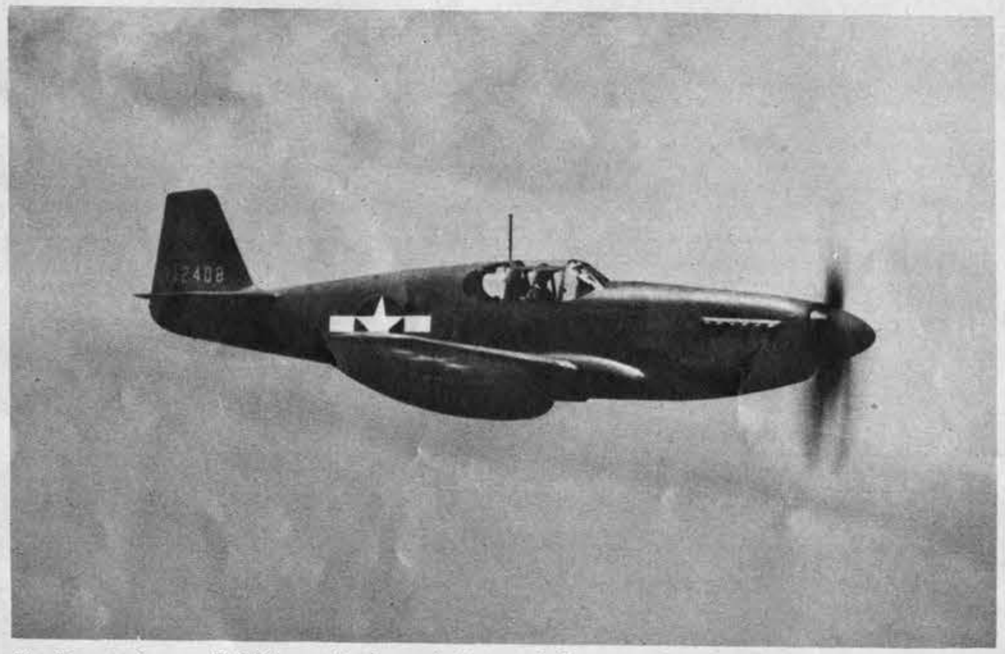
Navy's Mitchell, PBJ-1H, often has radome bulging from starboard wingtip. Otherwise this airplane is identical with the B-25H (*above*).



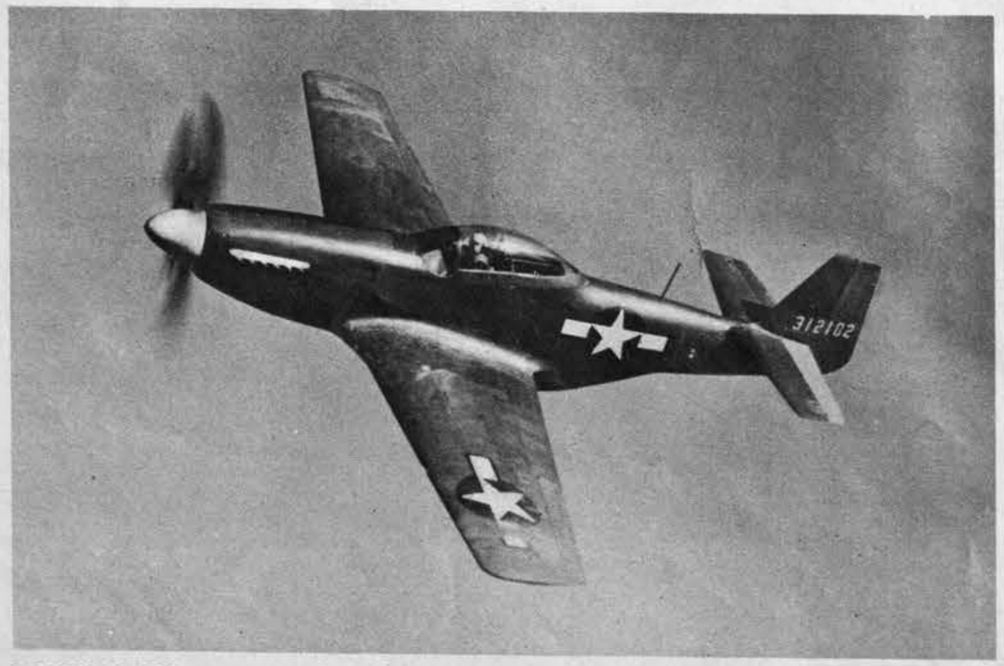
XB-28 was built as high-altitude bomber. Never produced, it had features later used in B-29 (remotely controlled turrets, pressure cabin).



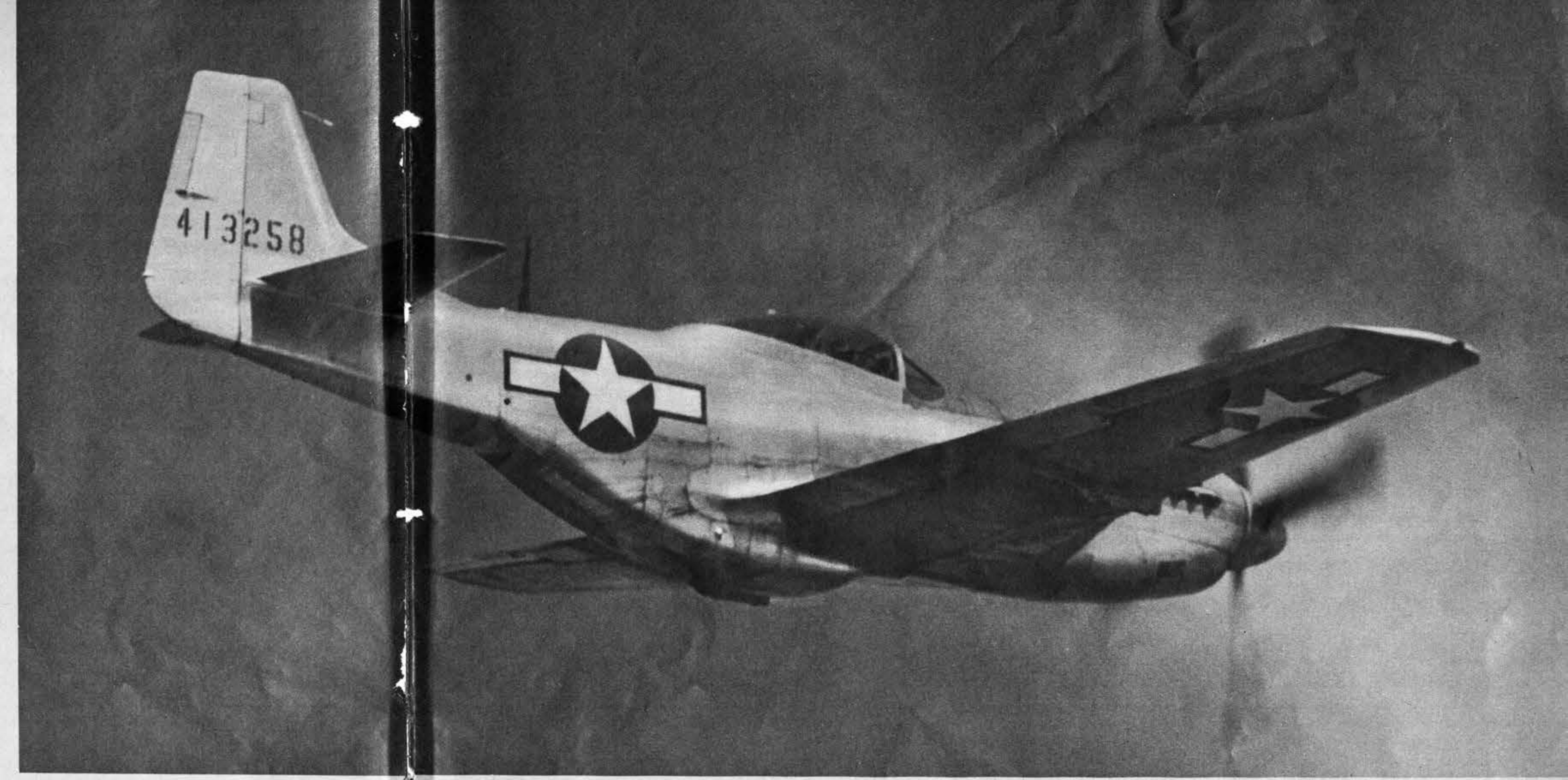
P-51A over Burma has Allison-powered Mustang's shallow nose and belly airscoops. Dive-bomber A-36 was similar in appearance but had diving flaps in upper and lower wing surfaces.



Merlin engine on P-51B required much deeper belly scoop but no air intake over the nose. It changed the Mustang from a low-altitude plane into a great high-altitude escort fighter.

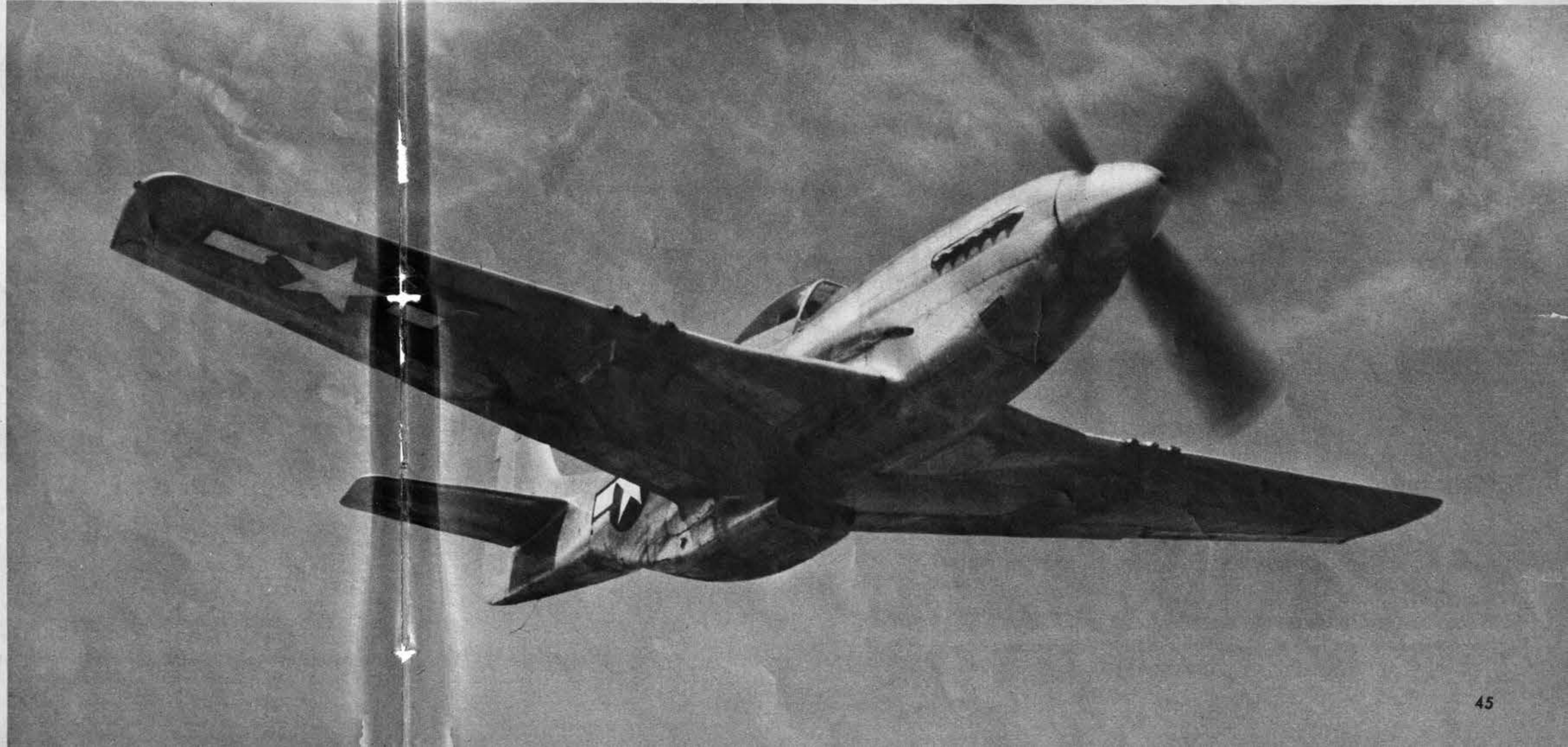


P-51D's bubble canopy reflected the Allied trend away from the fighter's faired cockpit cover in 1944. The Mustang now has a straight dorsal line broken only by bubble canopy.



LATEST VERSION OF THE P-51D HAS DORSAL FIN WHICH GIVES IT ADDED LATERAL STABILITY. WING SHAPE HAS ALSO BEEN CHANGED SOMEWHAT BY MORE PROMINENT FILLETS AT BOTH FRONT AND REAR

MERLIN-POWERED MUSTANGS CAN BE RECOGNIZED BY ANGULAR WING AND TAIL, ROUNDED COCKPIT COVER AND BELLY AIRSCOOP. THEIR STANDARD ARMAMENT CONSISTS OF SIX .50-CAL. MACHINE GUNS



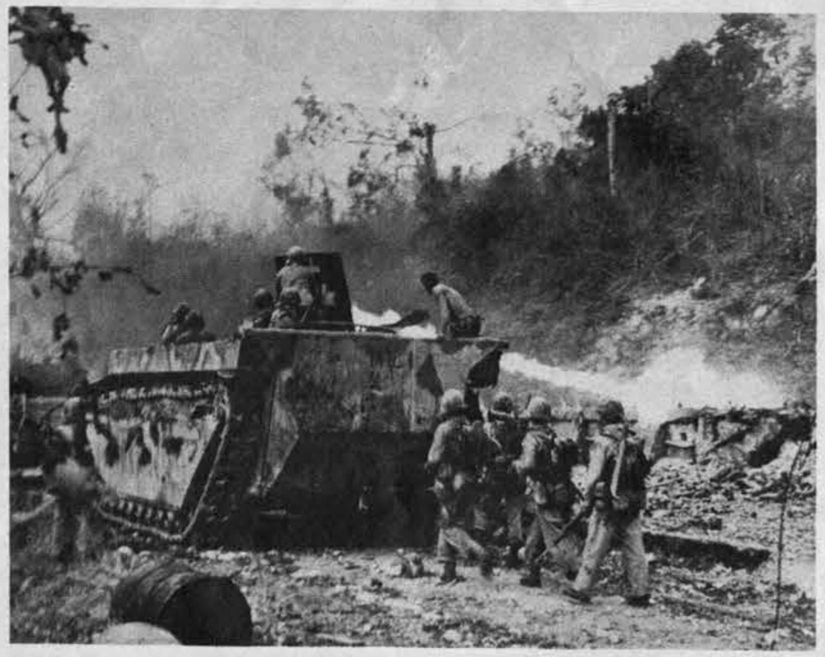
FLAME THROWERS ARE MOTORIZED

One of the war's most devastating weapons, the flame thrower, has been put on wheels. Introduced in World War I to sweep out enemy dugouts, it is being used with increasing frequency to smash through strong points and mop up caves and pillboxes.

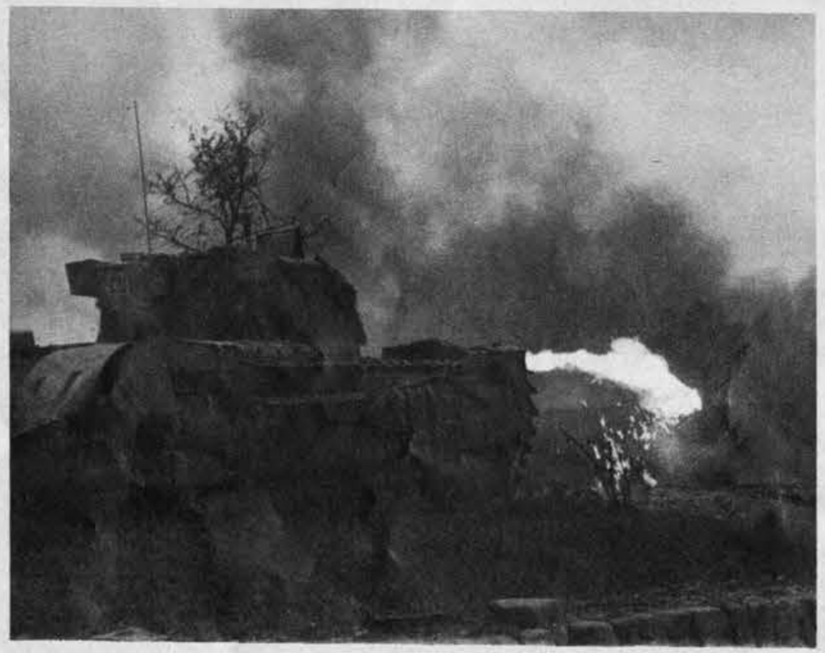
Flame-throwing equipment was formerly carried only by infantrymen who had to creep close to the target. Now, however, the flame thrower is mounted in tanks or other motorized vehicles giving its operator some degree of protection.

Allied flame-throwing vehicles range in size from the Universal Carrier to the Churchill heavy tank. In light vehicles the flame units are carried in place of cargo or personnel. Heavy and medium tanks retain main armament, squirt flames from an MG port in the hull. A specialized flame thrower is the U.S. M-3 light tank whose turret gun has been replaced by a flame unit.

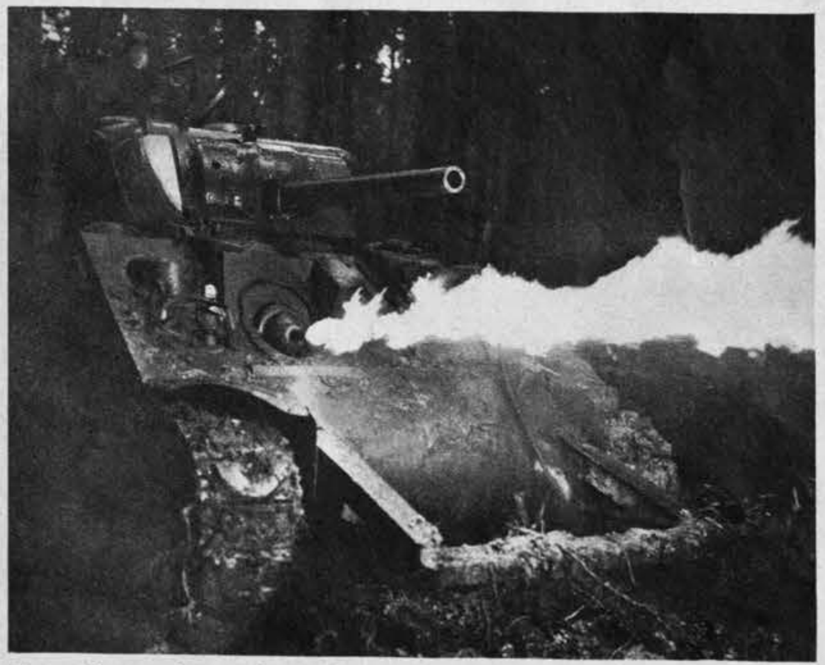
German flame-throwing vehicles are the Mark II light and Mark III and IV medium tanks. In the mediums flame throwers are in the turret, while on PzKw II a nozzle is mounted over each track guard near bow.



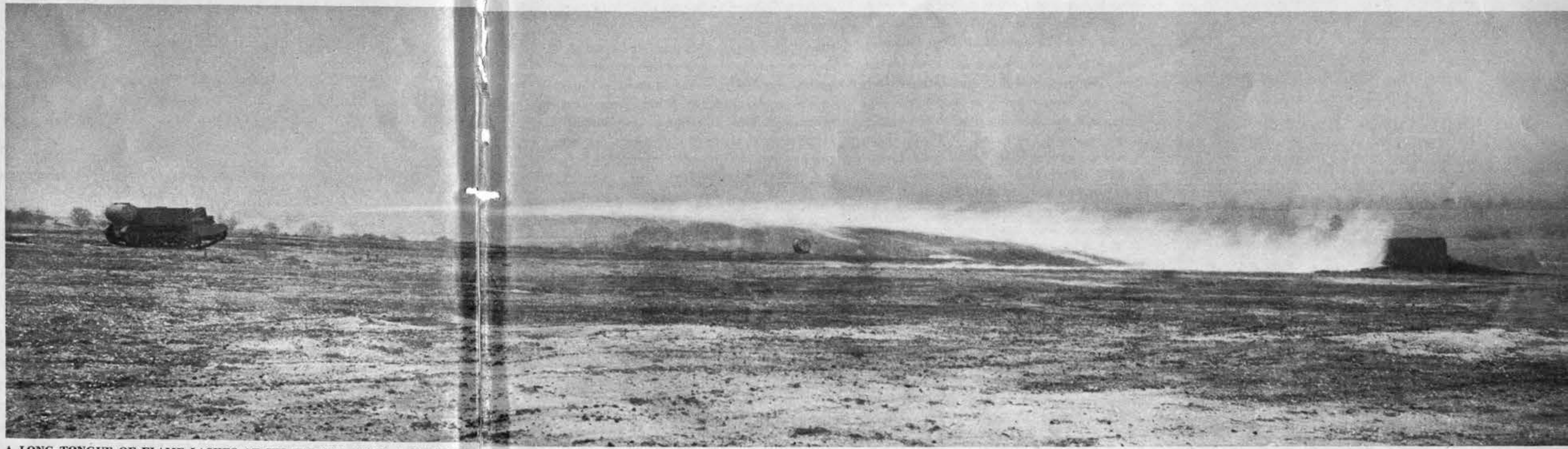
First Division Marines, mopping up enemy positions in Palaus, scorch a Japanese entrenchment from an LVT(4) to ferret out possible survivors.



The Crocodile, a flame-spitting Churchill, rolls forward in the final battle for Brest. It retains its big gun, tows a trailer to fuel its flame thrower.

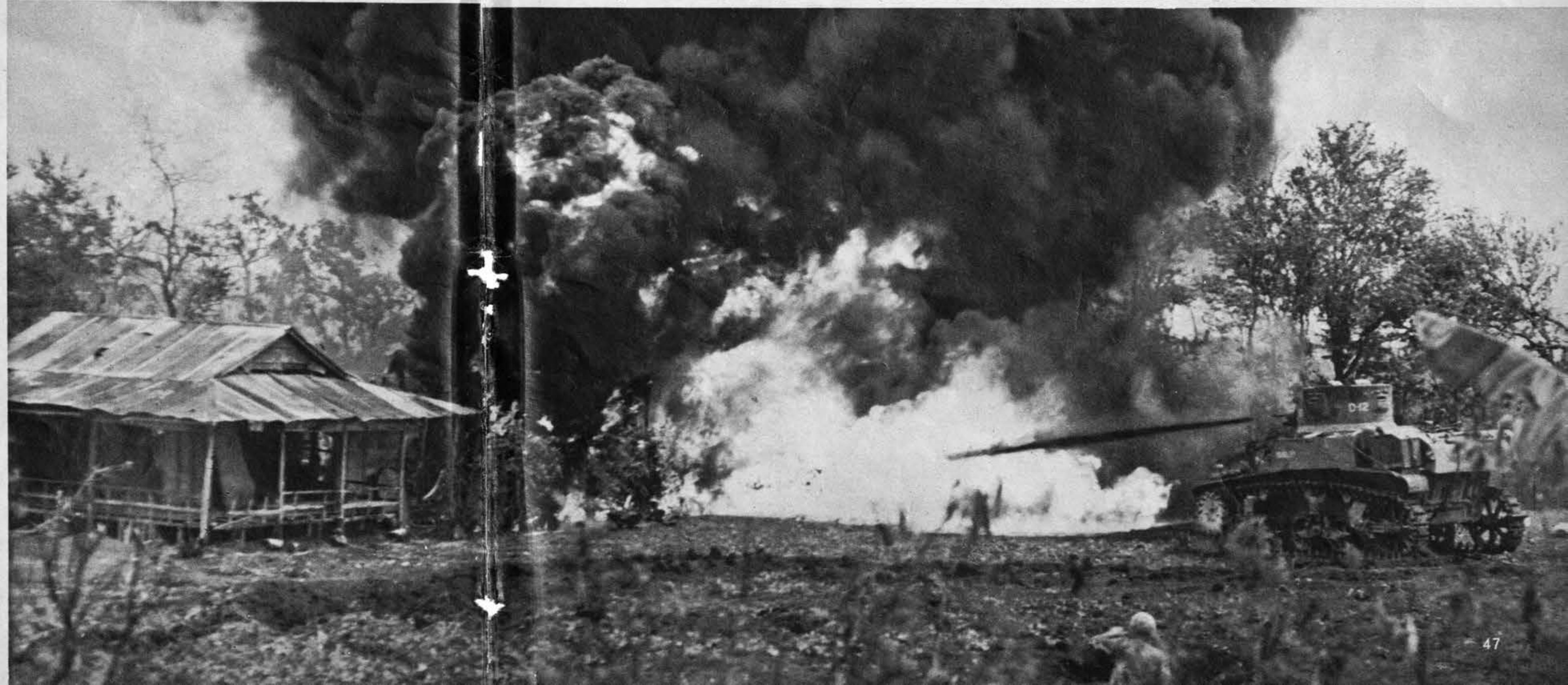


Flame thrower's nozzle replaces machine gun in M-4's ball mount. This flame can shoot out from the moving tank for a range of some 70 yards.



A LONG TONGUE OF FLAME LASHES AT ITS TARGET FROM A WASP IIC (BRITISH UNIVERSAL CARRIER). IT CAN BE RECOGNIZED BY 75-GAL. FUEL TANK AT REAR. SIMILAR VEHICLE, WASP II, HAS TWO 50-GAL. TANKS INSIDE

A CROUCHING MARINE WATCHES AN M-3's TURRET ADD FUEL TO THE FLAMES AROUND A JAPANESE PILLBOX ON SAIPAN. SAVED FROM THE SCRAP HEAP FOR USE AS A FLAME THROWER, THE M-3 IS SIMILAR TO THE M-5



QUIZ ANSWERS

QUIZ NO. 1

1. Cleveland Class CL's
2. Agano Class CL
3. Nachi Class CA
4. Emile Bertin CL
5. Arethusa Class CL
6. New Orleans Class CA
7. Brooklyn Class CL

QUIZ NO. 2

1. Me-262
2. FW-190
3. Me-109
4. Tabby
5. He-111
6. Ju-88
7. Val
8. Jake
9. Oscar
10. Judy
11. Me-410
12. Betty
13. Dinah
14. Zeke
15. Me-163

QUIZ NO. 3

1. Small armed trawler
2. Fox Baker
3. Wakatake Class DD (Old Two-Stack)
4. Fox Tare Charlie
5. Otaka Class CVE
6. Fox Baker
7. Hospital Ship, Tare Two Stacks (not a target)
8. Fox Tare Charlie
9. Hatsuharu-Shigure Class DD (Modern Two-Stack)
10. UN-1 (DE)
11. Fox Tare Able

QUIZ NO. 4

1. L to R: U.S. M-7; German PzKw IV
2. Russian T-34's
3. German PzKw V Panther
4. British Churchill
5. Japanese Light Tank 2595
6. L to R: U. S. Tank Recovery Vehicle M-31; U.S. M-5A1
7. German King Tiger
8. U.S. LVT(4)
9. Japanese Medium Tank 2597

QUIZ NO. 5

1. F7F-2
2. Me-410
3. Warwick
4. Firefly I
5. SC-1
6. Pe-2
7. B-17
8. Ju-188
9. FW-190
10. Tempest II
11. FW-200
12. B-29
13. Lily 1
14. PB4Y-2
15. Myrt 11

This month's cover is an Army picture of the USAAF's Northrop-built P-61 nightfighter. Known as the Black Widow, this three-man plane has been in action in both the Pacific and European theaters, intercepting bombers and strafing enemy positions. Pictures of other nightfighters appear on pages 14-17.

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32—Top, Sovfoto
33—Top and bottom, Sovfoto
34—Top and center, Sovfoto
35—Top and bottom, Sovfoto
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Abbreviations: A.P., Associated Press; Int., International

NEWS & MISCELLANY

NEWS

Sugar Able Sugar (*below*) has been added to the JMST method of reporting Japanese merchant ships. Smallest of the Sugar Ables, this mass-produced tanker, with a gross tonnage of 1,000 to 2,500, has a very sharp, raked bow, trunked deck, small square stern, bridge aft and no catwalk.

Peggy 1, forerunner of a new type of Jap Army bomber, was first encountered over China and more recently in raids on Saipan. Important data are now available. Peggy's speed of about 340 m.p.h. at 20,000 ft. is somewhat greater than that of Sally, Helen or Betty and almost equals Frances'. Span is 73.8 ft.; length is 61.3 ft. Top bomb load is believed to be about 3,500 lb.

Peggy incorporates two new features never before used on any Jap plane—full-feathering propellers and a radio altimeter—and two features never before used on a Jap Army plane—a 20-mm. hydraulic dorsal turret and torpedo racks. There is improved armor for the crew and protection for most fuel tanks. It is possible that Peggy carries radar gear.

Frank 1, Jap Army fighter, participated in defense of the Philippines. It is definitely established that Frank's empennage is similar to Tojo's and that wing shape is similar to Oscar 2's. Because of its increasing importance Frank should be stressed by combat recognition officers.

Oscar 3 is now known to be operational in China and the Philippines. Recognitionally the new version is similar to Oscar 2 but individual exhaust stacks replace collector rings of the earlier model. Armament is reported to be four 12.7- or 13-mm. guns. Oscar 3's range may be greater than that of the 2 model and slightly improved speed and climb are expected.

TBM-3 standard production model is recognitionally similar to earlier models. Special modifications on some TBM-3's include a radome on the starboard wing and/or a curving greenhouse replacing the familiar ball turret (see *Journal* for January 1945, page 8).

Matsu class DD construction is apparently well standardized and rapid. Matsus are now believed to be operating with large fleet ships.

New Jap transport is marked by simple, clean lines with superstructure rounded at both bridge and after end. Length is about 450 ft.; gross tonnage, 8,000. Armament consists of two 3-in. guns and possibly machine-gun platforms at the bow, smaller gun and two MG's at fantail.

Irako, Jap (AF) provision ship, has unusual cargo-handling equipment. Eight deck cranes are used with two added booms for foremast and mainmast. This is an attempt to speed loading and unloading to an extent not apparent on any other Jap ship. Light tripod mast is located just forward of stack. Ship carries two 5-in. shielded mounts.

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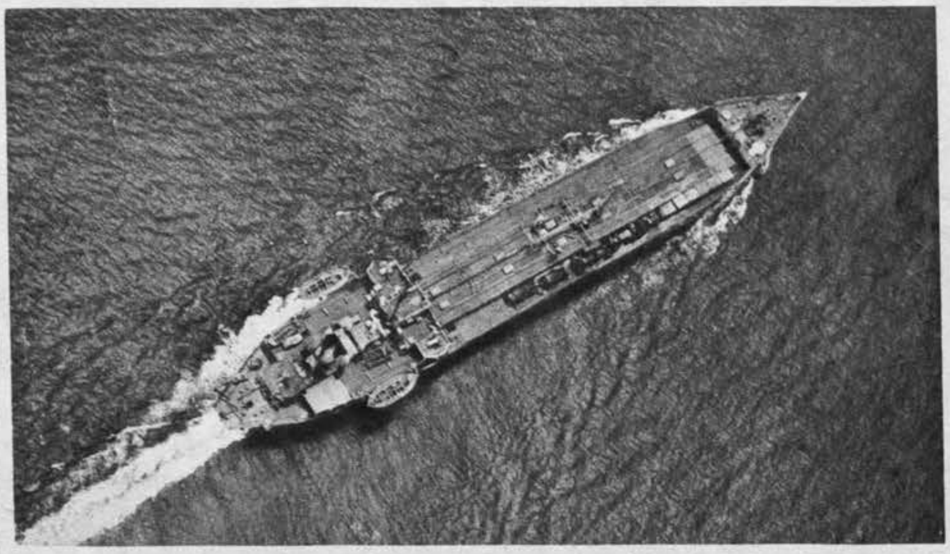
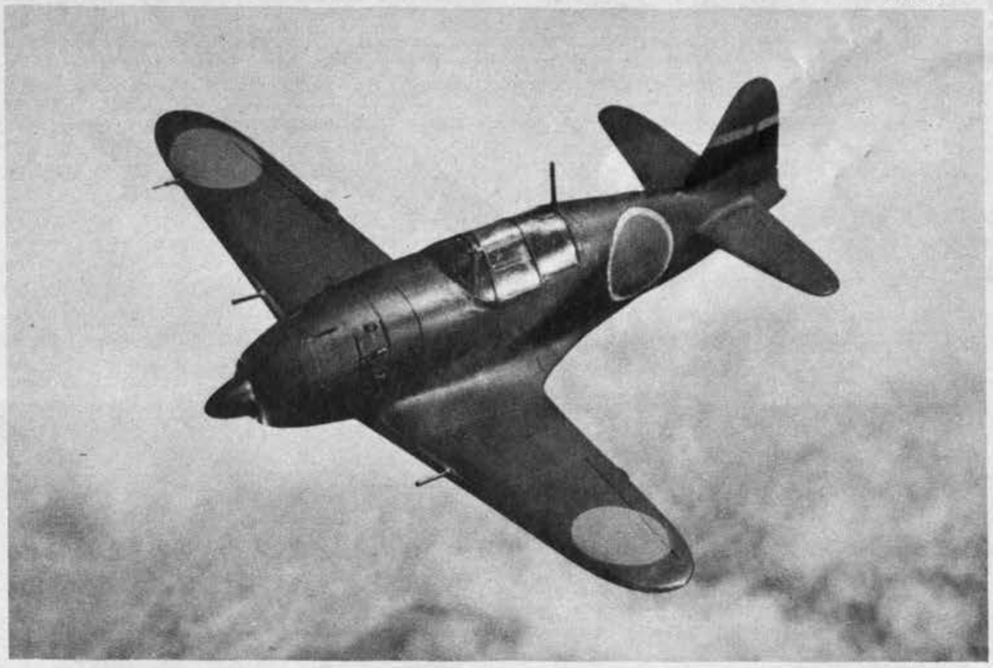


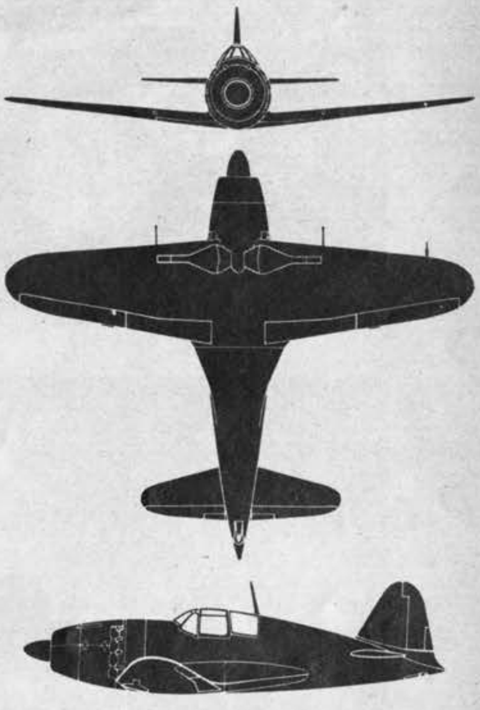
Sugar Able Sugar, spotted off Cebu, is a small Jap tanker without the customary catwalk (*see text above*). Hull design is simple, angular for mass production.

FIGHTER

JAPAN

JACK





DISTINGUISHING FEATURES: Single-engine, low-wing monoplane with single fin and rudder. Fuselage, fat and stubby, is bowed throughout, extends slightly beyond a triangular fin and rudder. Cockpit is set low and about amidships. Leading and trailing edges of wing have slight taper. Wingtips are unusually well rounded, fillets are wide and long. Circular fuselage extends pointedly beyond tailplane which has greater taper on leading edge. Medium dihedral to wing throughout. Horizontal stabilizer set at medium height.

INTEREST: Jack called Raiden or Thunderbolt by the Japanese is more powerful and heavily armed than previous Jap single-seat fighters. It will become operationally more important in 1945. It was built for either carrier or land-based service with landing hooks on all aircraft placed just forward of the tail wheel.

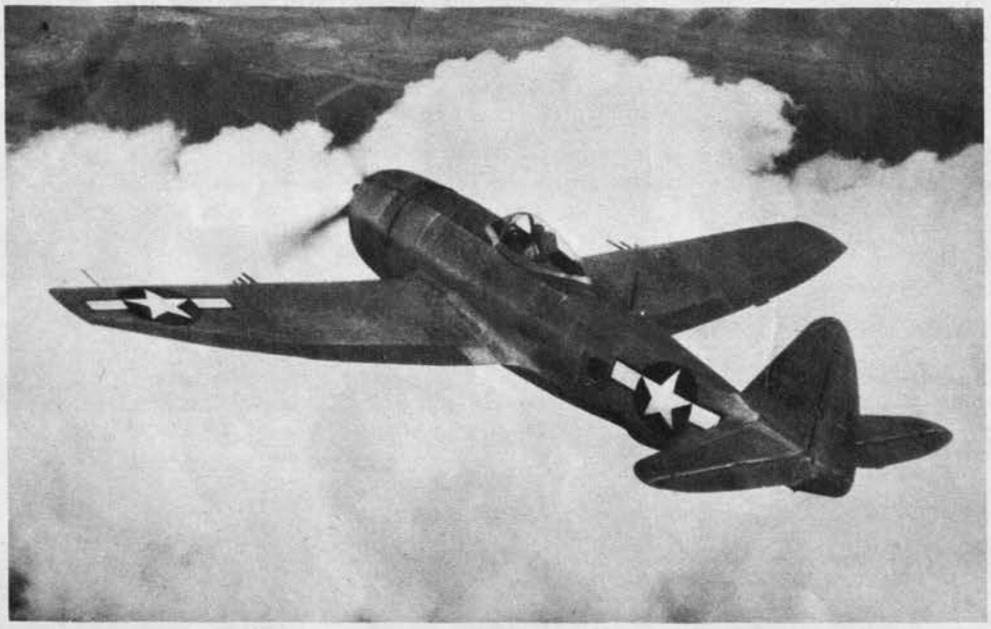
SPAN: 35 ft., 4 in.
LENGTH: 31 ft., 8 in.
APPROX. MAX. SPEED: 350 m. p. h.
SERVICE CEILING: 37,500 ft.

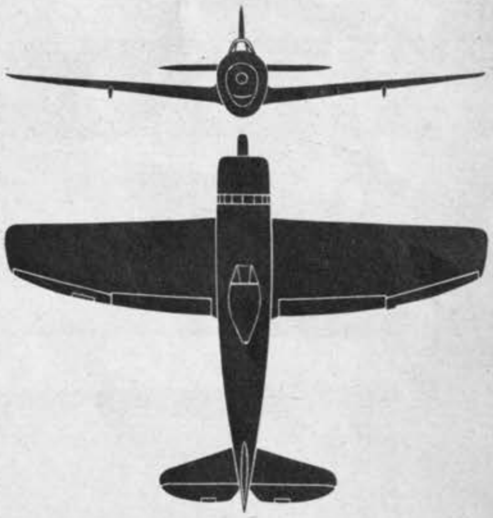
NOTE: This page is to be cut along dotted lines (***above and below***), added to the proper nation's section in the Recognition Pictorial Manual. The dots indicate perforations.

FIGHTER

U.S.A.

P-47N



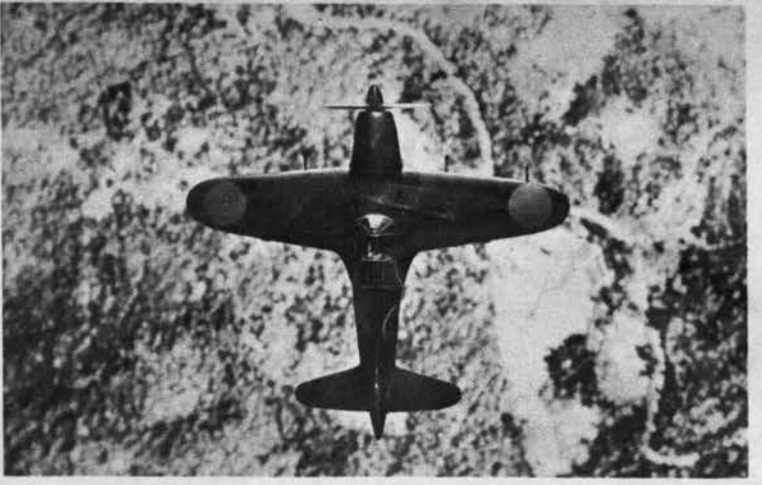


DISTINGUISHING FEATURES: Single-engine, low mid-wing monoplane with single fin and rudder. Small spinner protrudes from an oval fuselage which is thick and heavy in nose and center section. Cockpit is small, blister type. Tail is triangular although rudder curves slightly. Leading edge of wing is almost straight, trailing edge curved, and wingtips blunt and slightly raked compared to earlier models. Leading edge of tailplane has distinct taper with trailing edge curved, broken by bite. The wings have dihedral from roots.

INTEREST: P-47N is the latest model of the Thunderbolt. Earlier models proved outstanding and the N should enhance the P-47's enviable record by great performances in the Pacific. The N, with 2,100 hp. is the fastest P-47 to reach full production. Its greatly increased gasoline capacity makes long-range escort missions possible. Its wing span is almost two feet greater than earlier D model. Firepower is the same.

SPAN: 35 ft., 4 in.
LENGTH: 31 ft., 8 in.
APPROX. MAX. SPEED: 350 m. p. h.
SERVICE CEILING: 37,500 ft.

A



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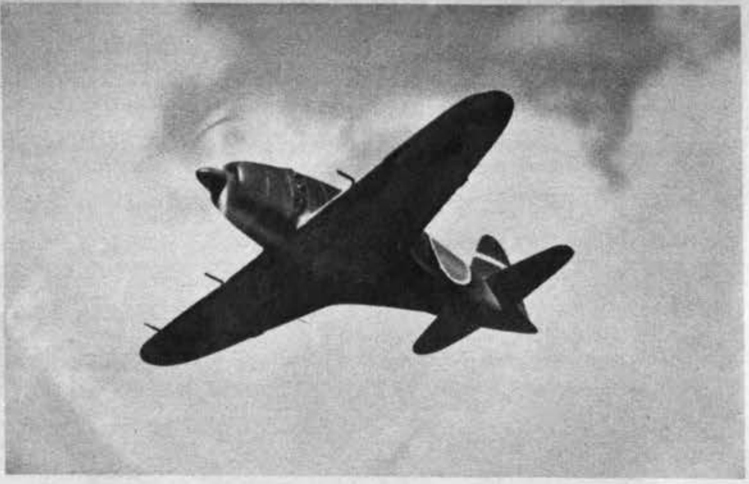

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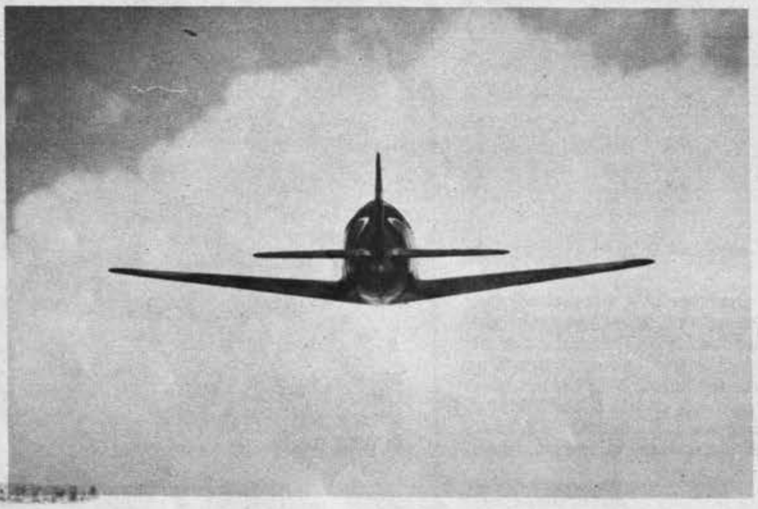

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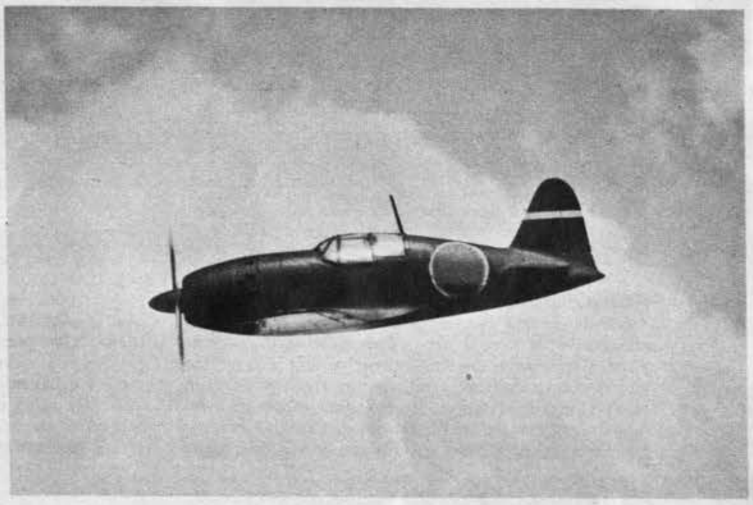
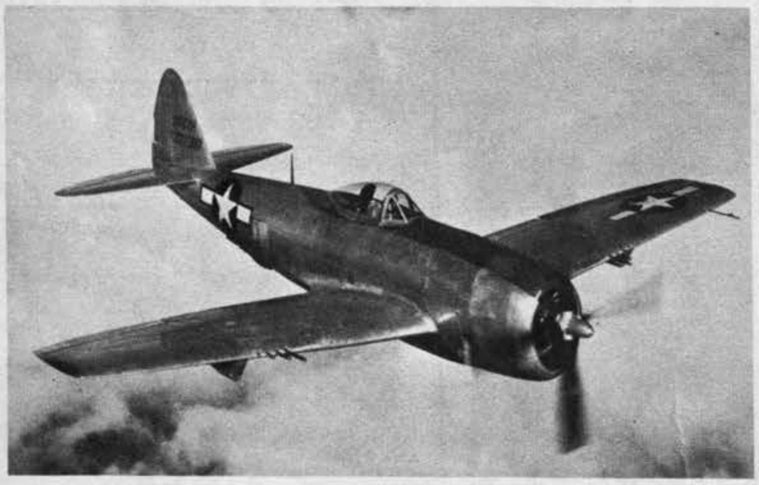


JACK, the Japanese Navy's new short-range interceptor, is superior to Zeke in performance and will probably be seen in increasing numbers. Tubby and compact in design, Jack lacks the long, tapering fuselage found on many Jap fighters.

P-47N differs recognitionally from previous Thunderbolts in the shape of its wing. Wingtips are now bluntly raked but span is actually increased. When serving as a short-range fighter-bomber, the P-47N can carry a 2,500-lb. bomb load.

A



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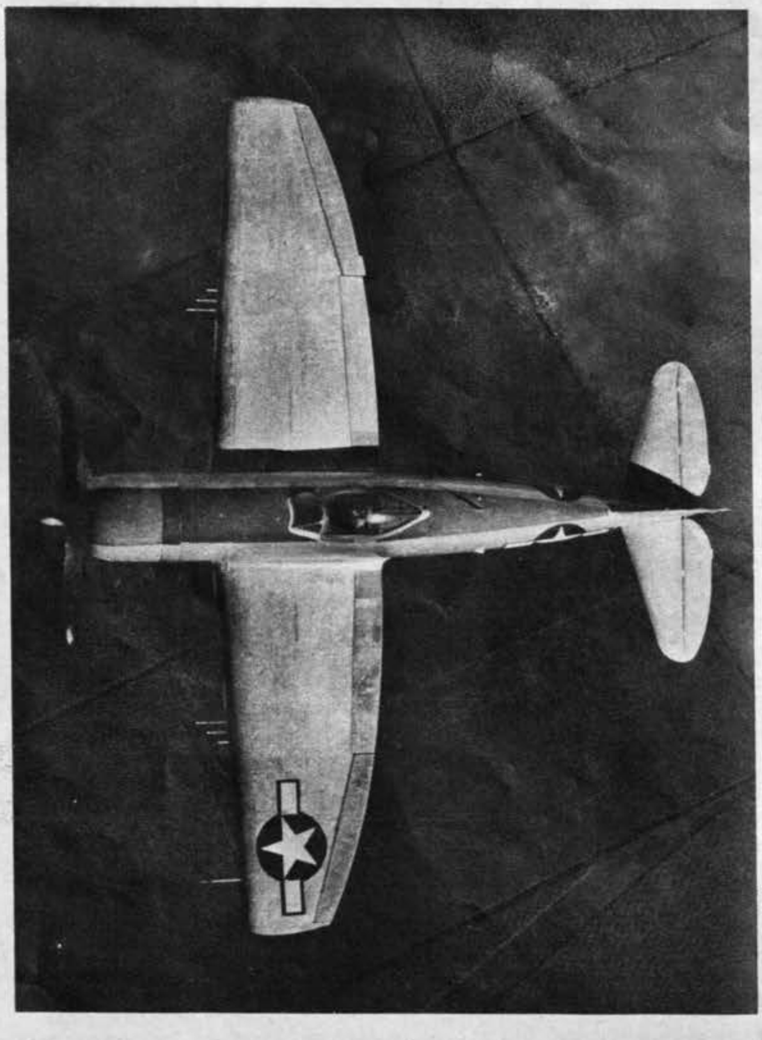

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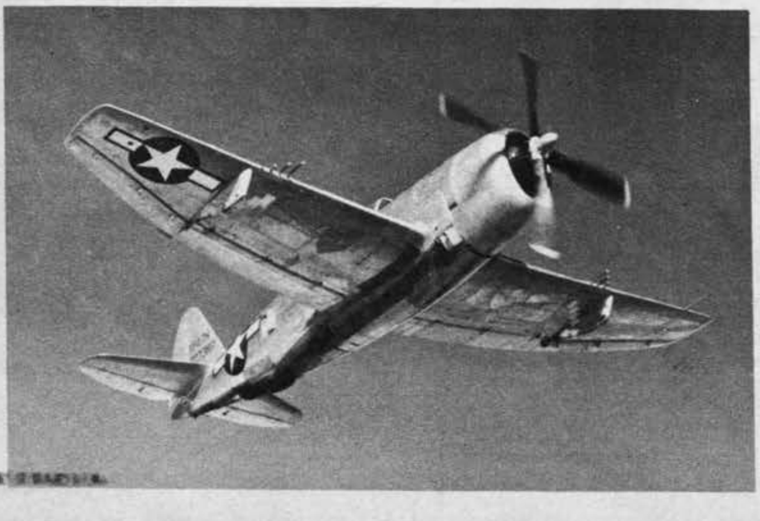
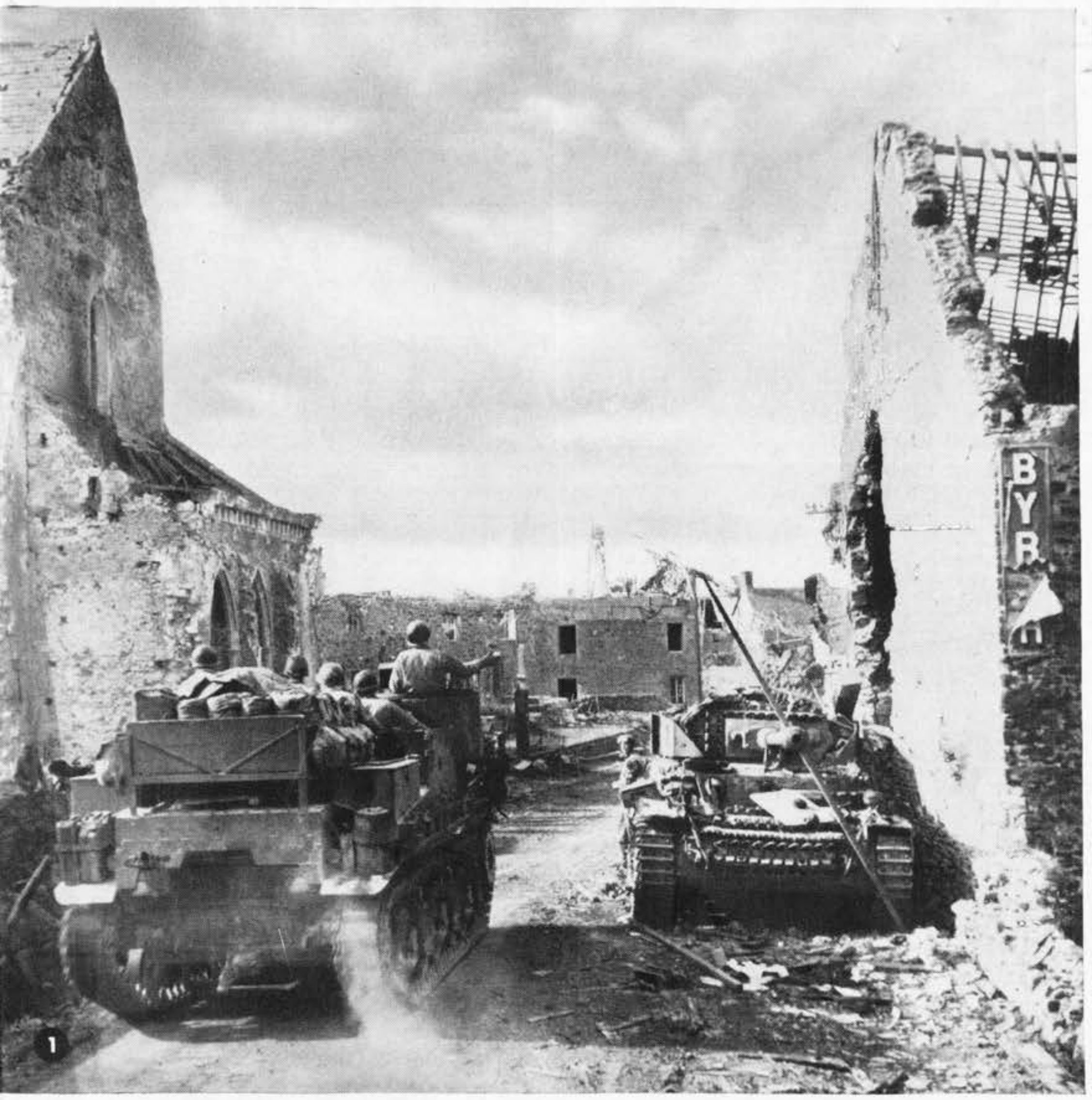


QUIZ NO. 4: VEHICLES OF FIVE ARMIES



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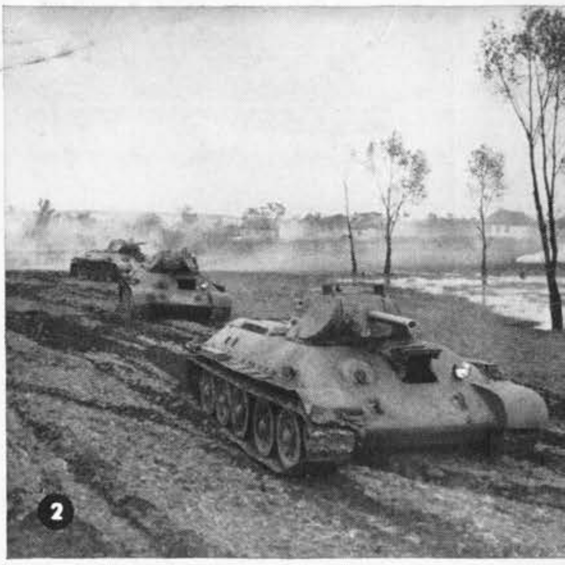

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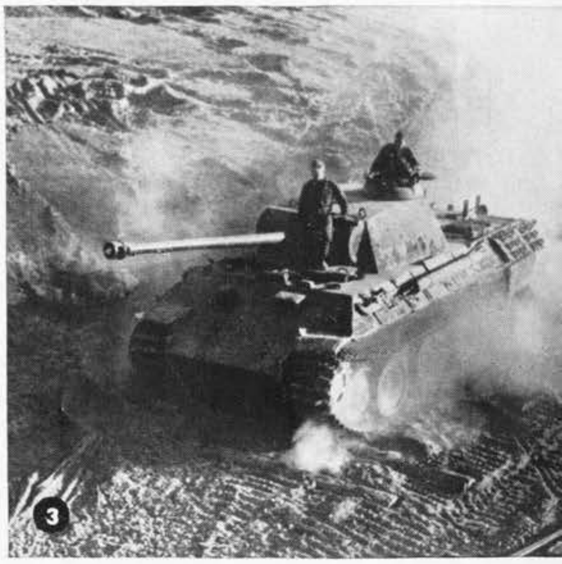

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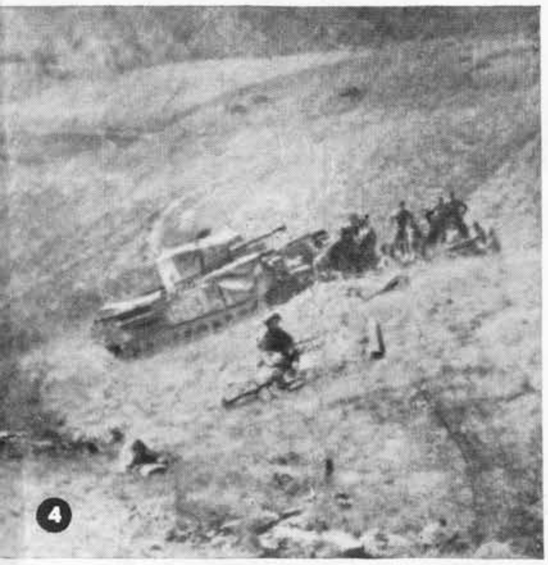

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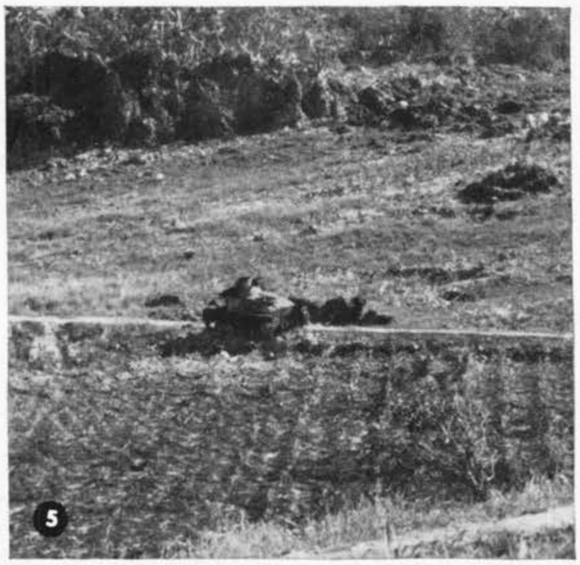

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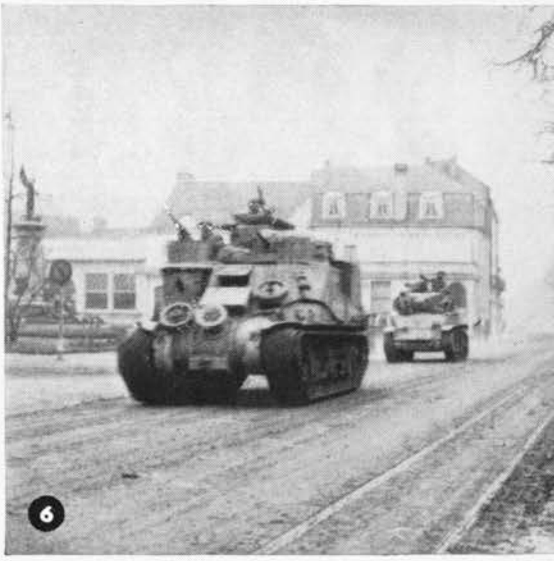

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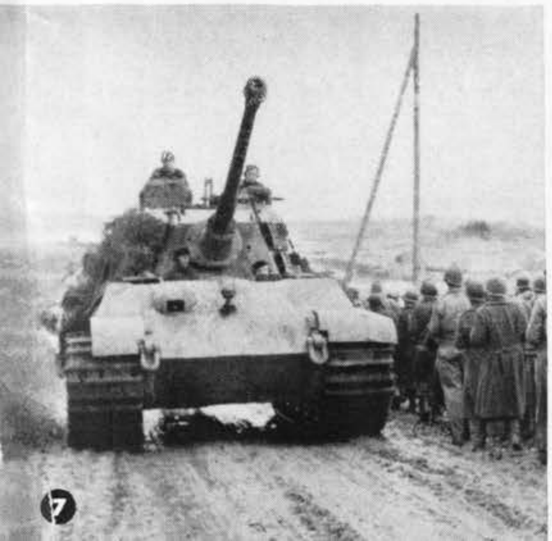

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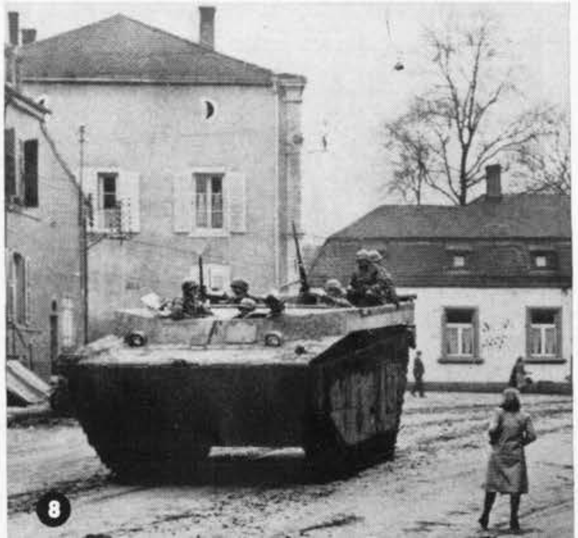

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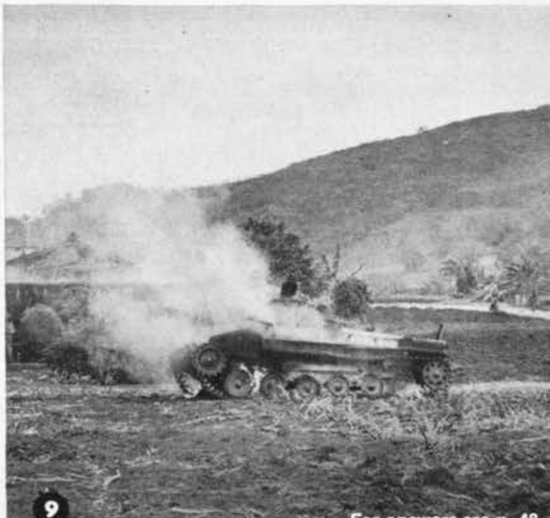

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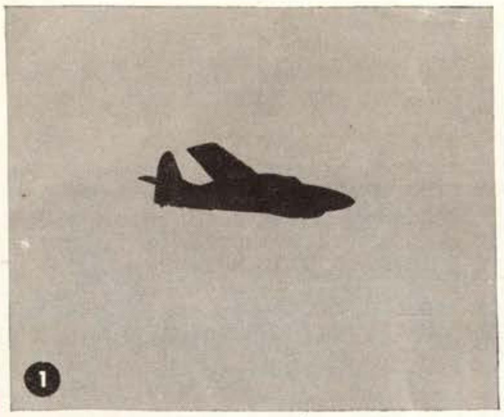
For answers see p. 48.

QUIZ NO. 5: THIS MONTH'S SILLOGRAPHS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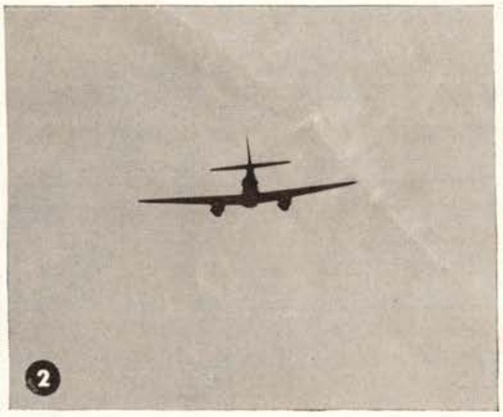
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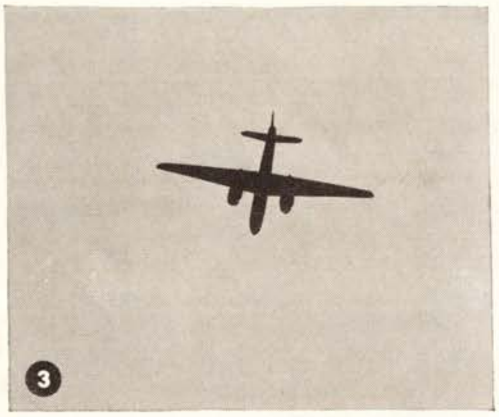
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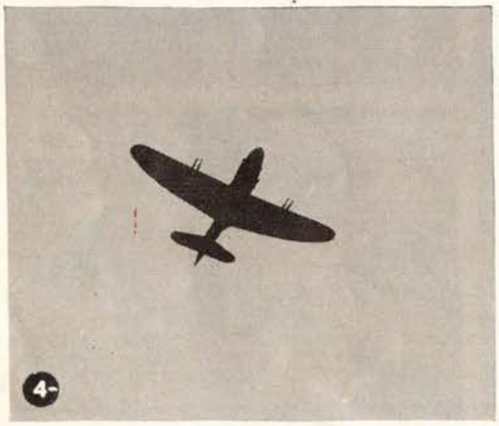
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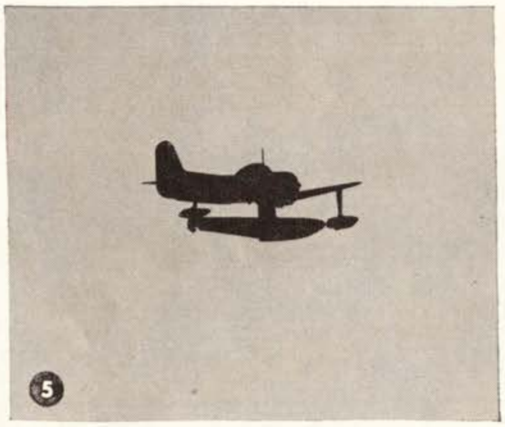
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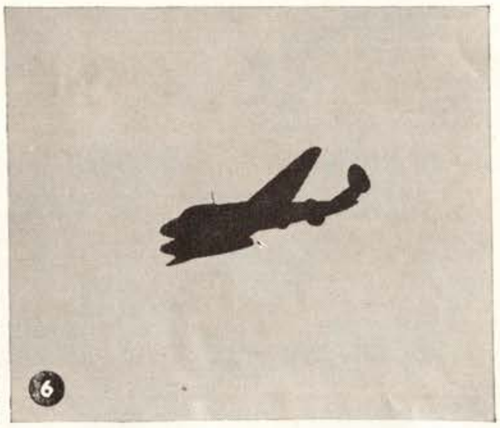
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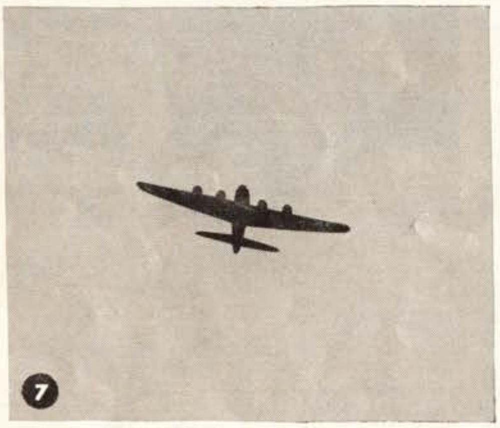
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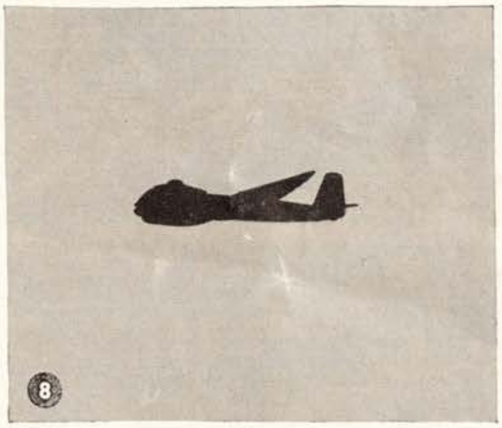
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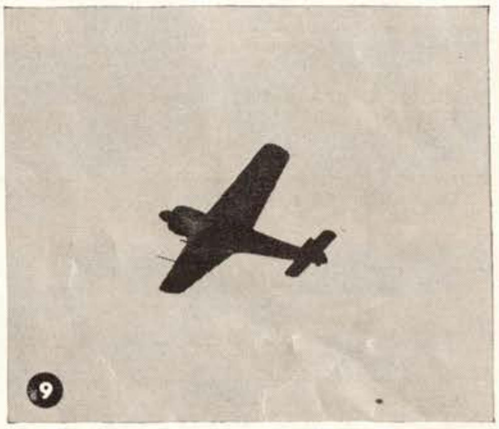
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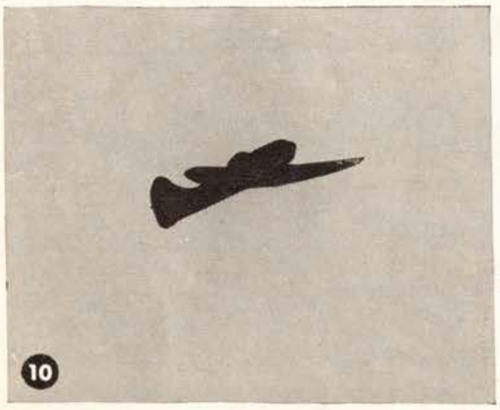
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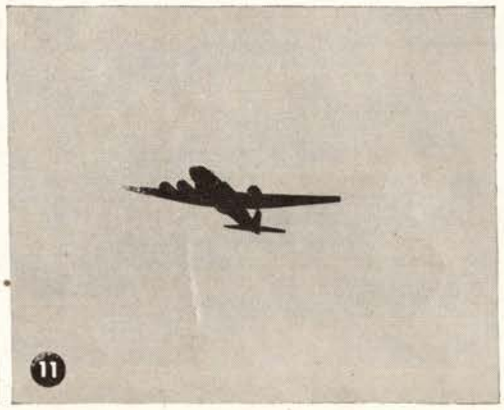
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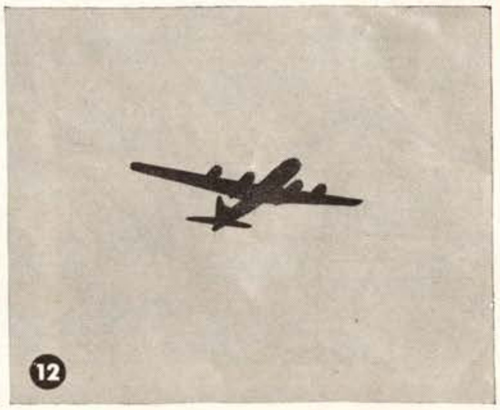
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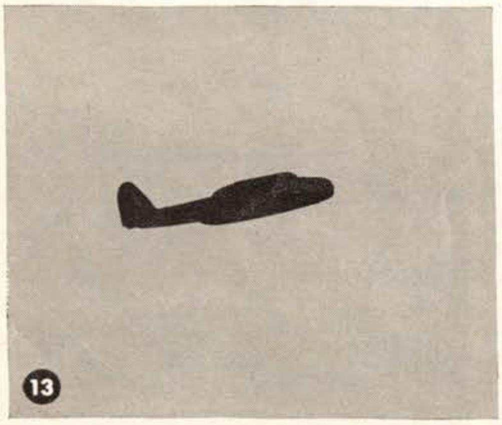
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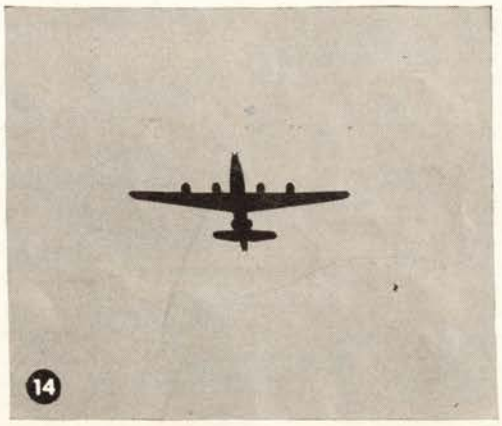
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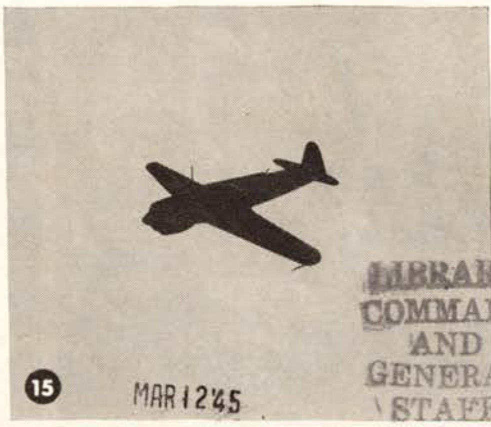
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RECOGNITION
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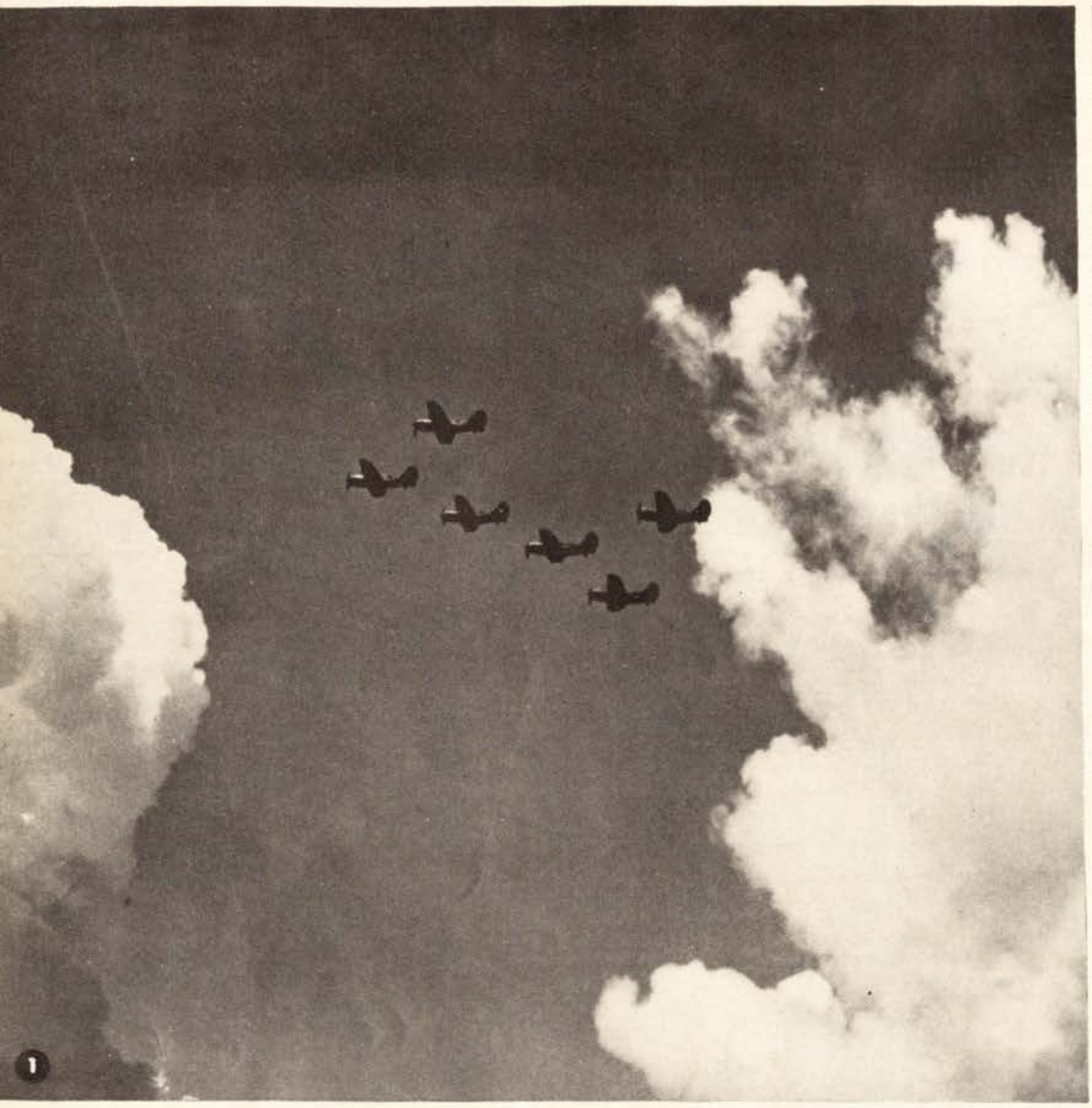
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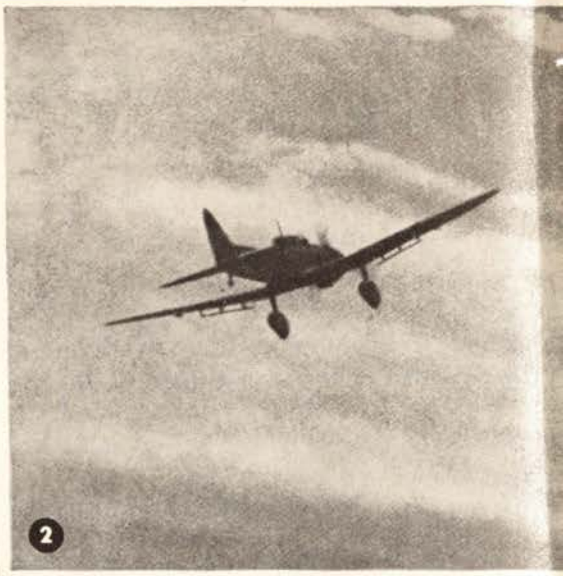
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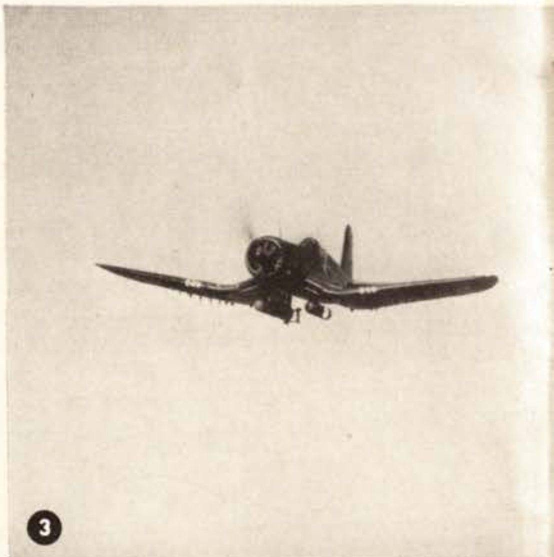
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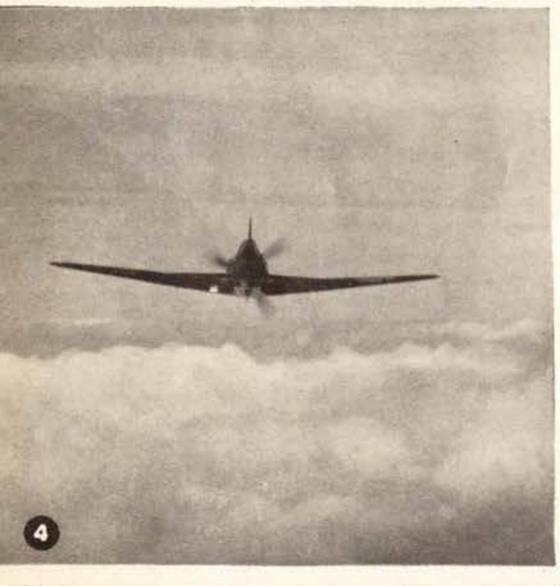
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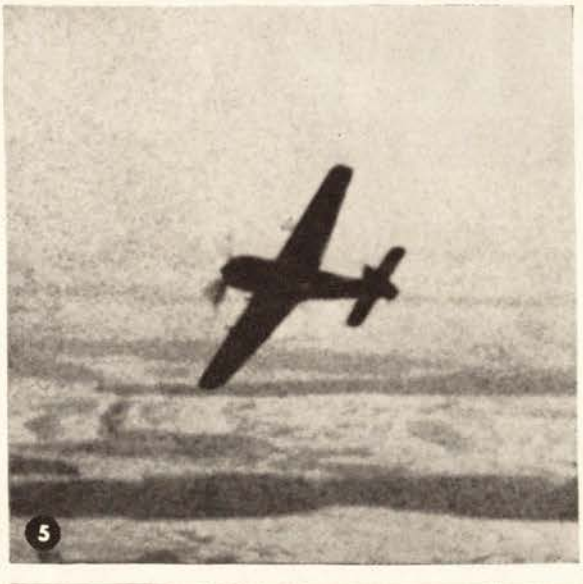
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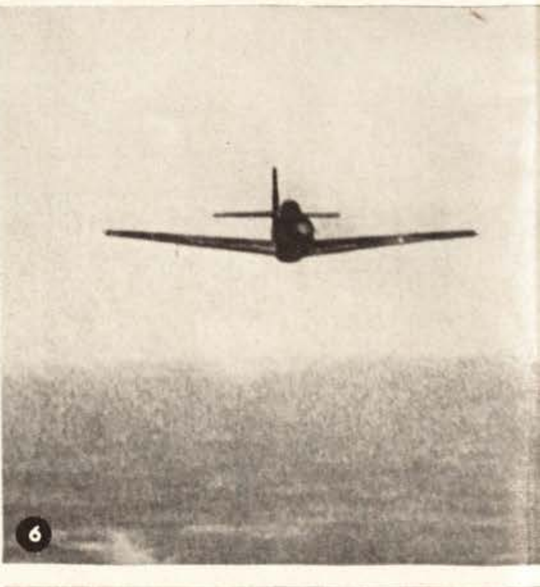
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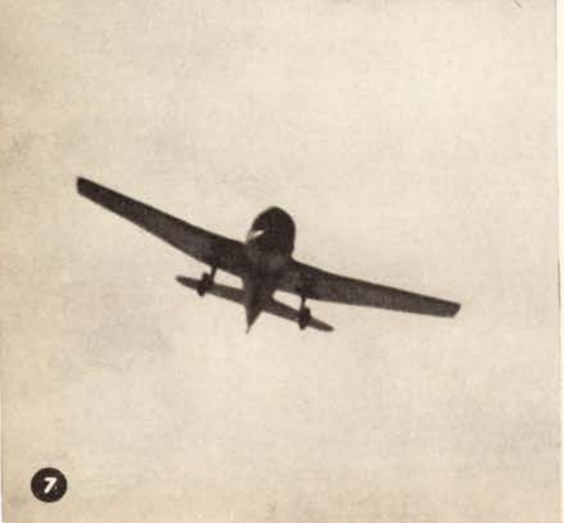
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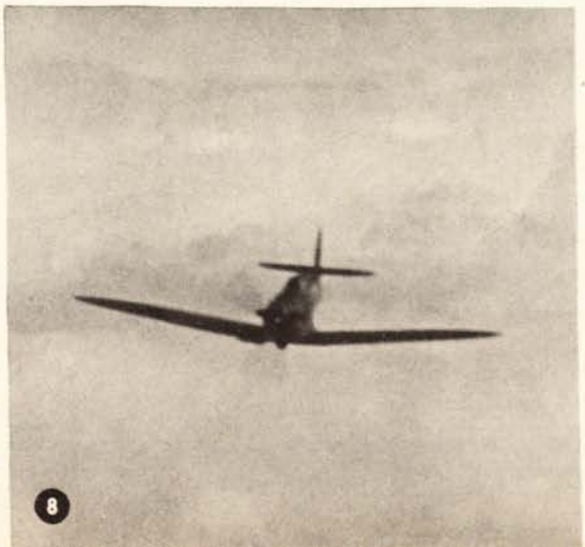
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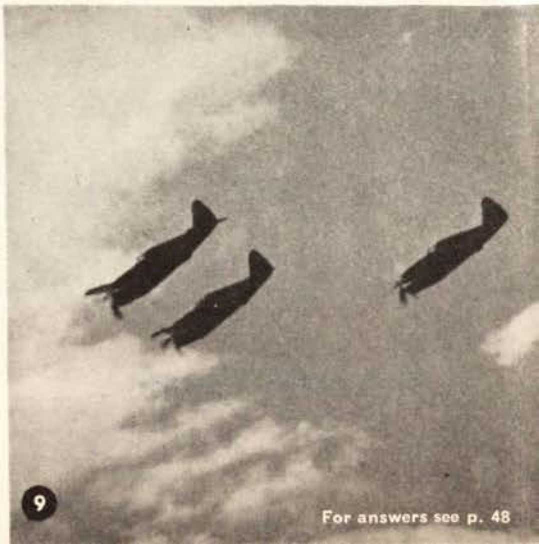
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For answers see p. 48

NUMBER 20

RECOGNITION JOURNAL

APRIL, 1945

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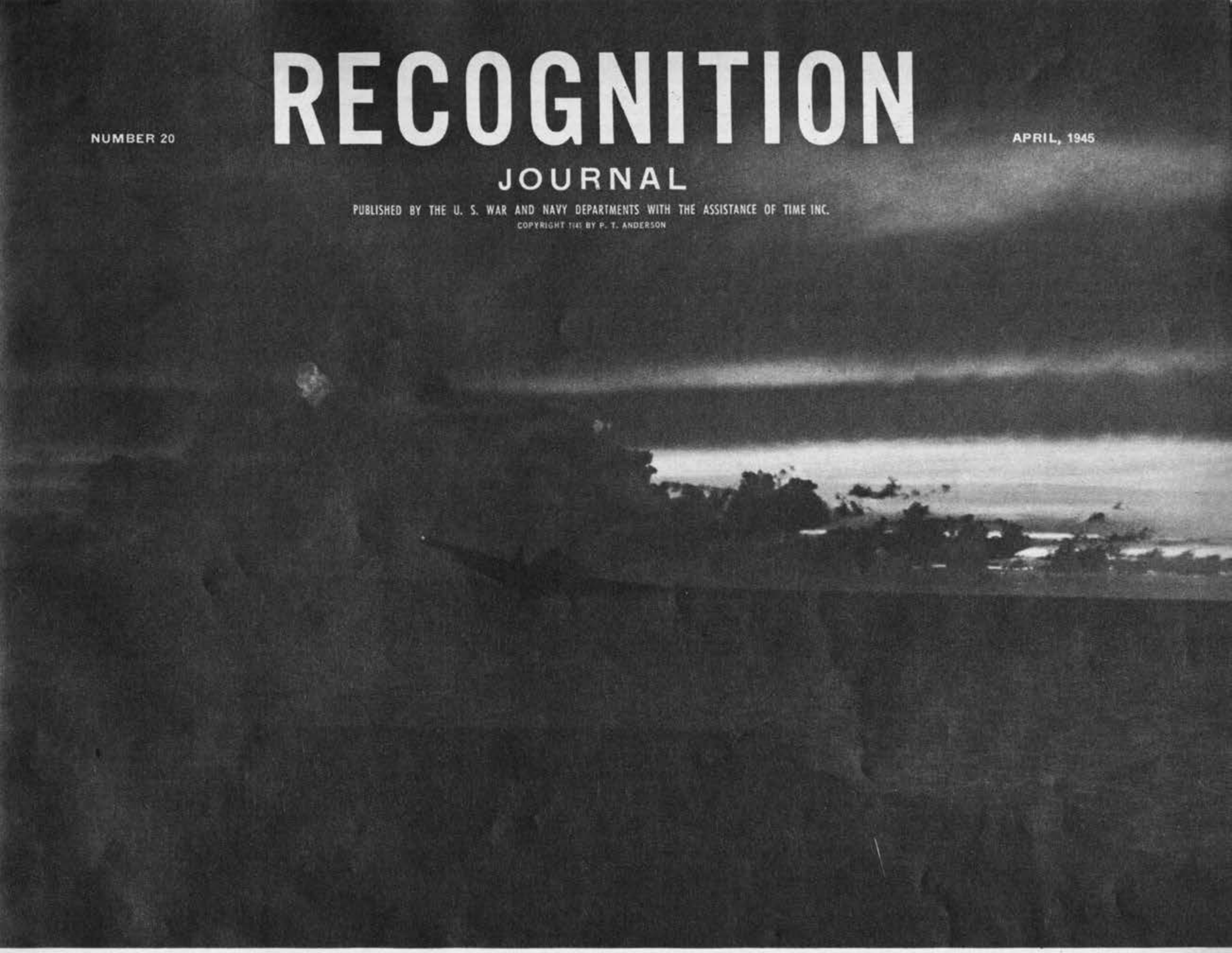


LAST PLANE IN FROM THE GREAT CARRIER STRIKE AGAINST THE MARIANAS, A TBF SETTLES DOWN OUT OF THE GLOOM ONTO FLIGHT DECK

NIGHT RECOGNITION

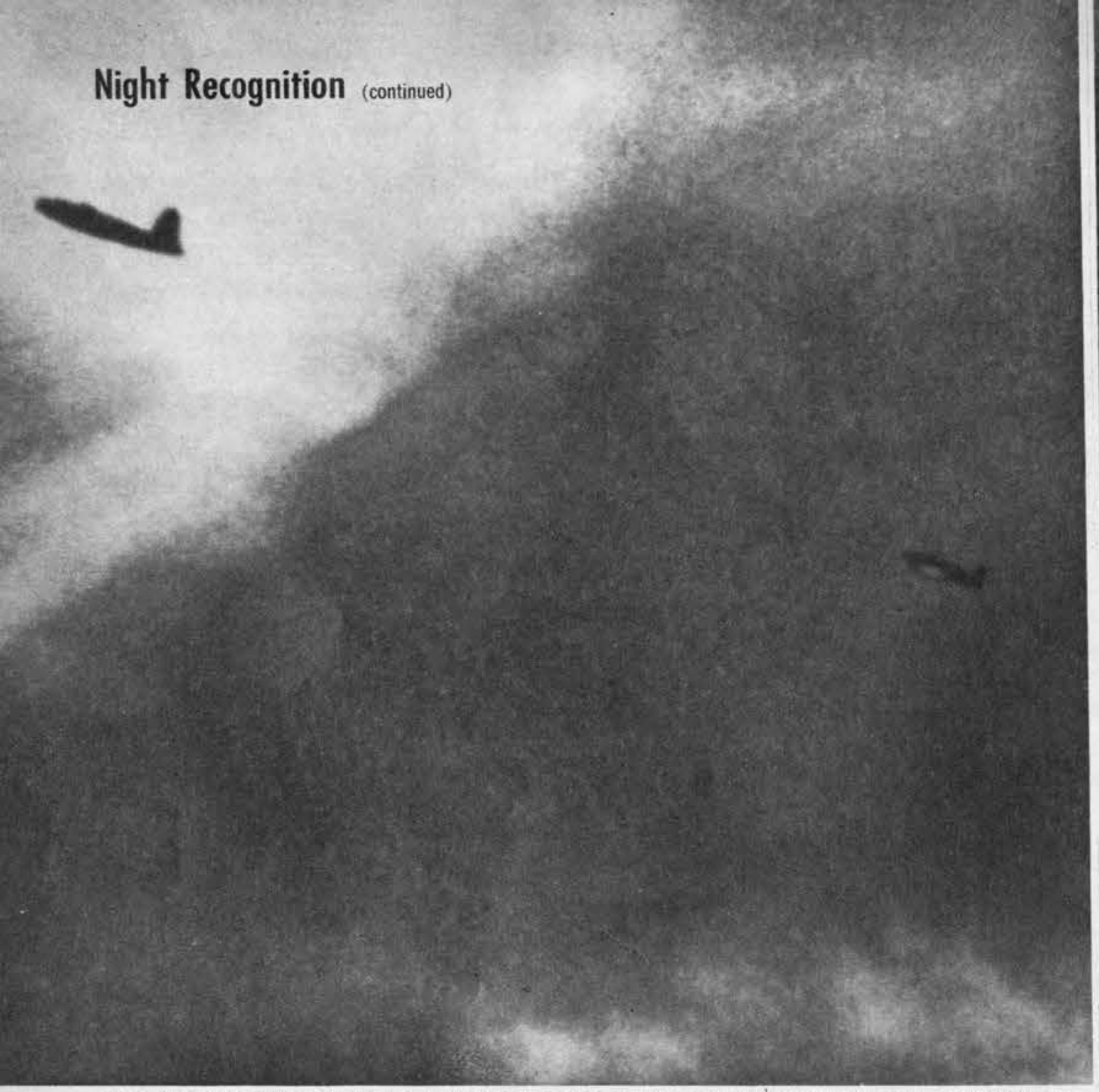
Night sabotages the most vital of the fighting man's five senses—his sight. War goes on around the clock and the soldier, sailor or airman must be able to see to fight. On the offensive, the man who is sure of himself at night can use the darkness to cover his approach and gain the precious advantage of surprise over his opponent. Conversely, he must be equally at home in the dark to counter similar tactics by the enemy. Much, therefore, depends on how well he learns to use his eyes at night.

The military requirements of our land, sea and air forces on all fronts focus attention on the techniques of night warfare. Night operations have always been a major phase of the European air war, while the recent upswing in U. S. intruder missions adds further to their importance in this theater. In the Pacific, the changing shape of war points the need for much greater attention to night vision and recognition. B-29's are repeatedly pounding Japan at night, while carrier missions after sunset are on the increase. Likewise, the enemy has taken cover in darkness, and sneak raids by small groups of torpedo bombers pose a new problem for our fleet. With ever-increasing numbers of planes in the air at night, both friendly and enemy, recognition becomes a 24-hour responsibility.

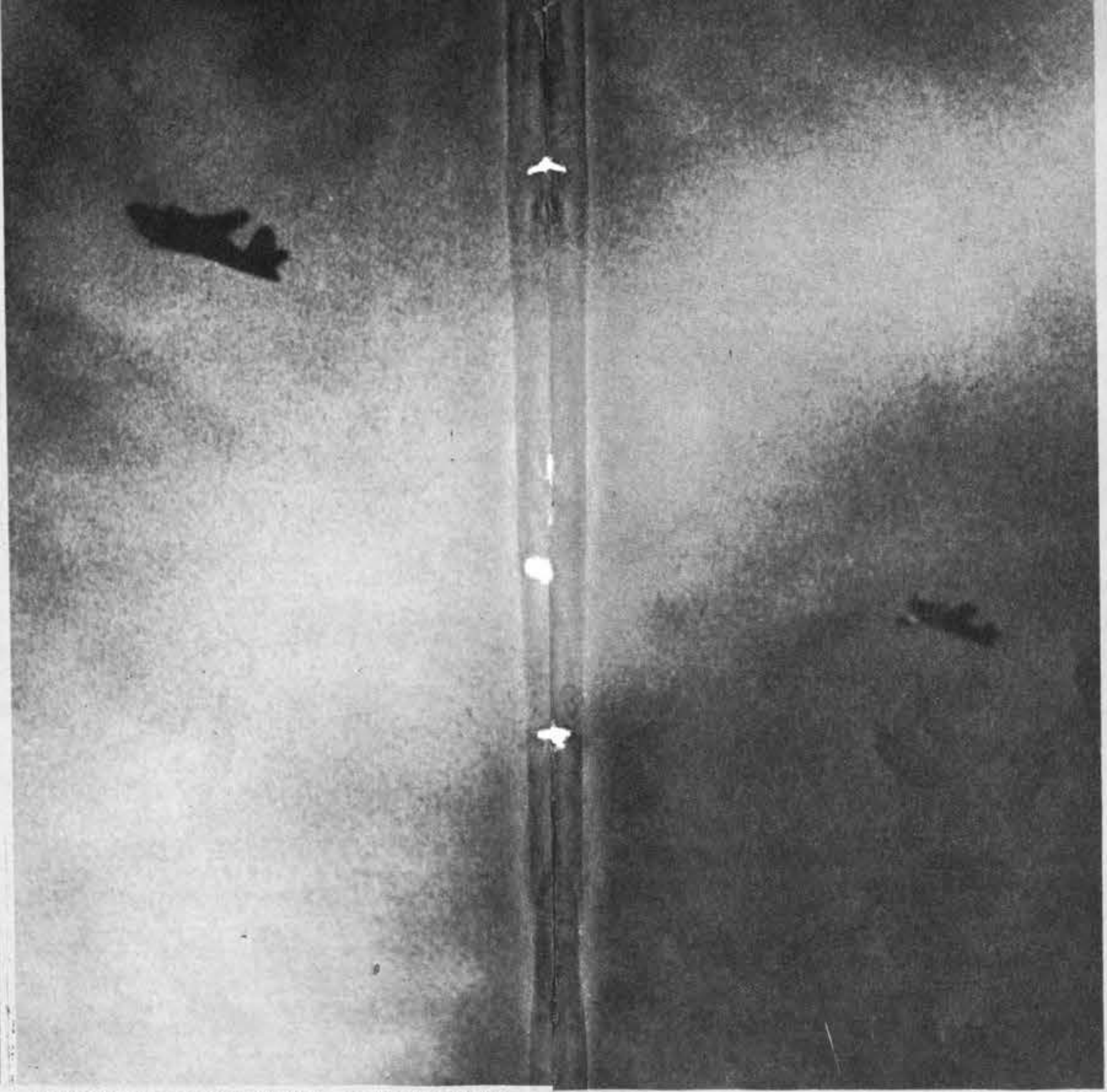
Much of nightfighting is radar-directed but radar alone is not enough, especially when many planes are aloft. Visual contact and recognition must be made before firing. Although night recognition is in the development stage, airmen from all fronts report that aircraft can be recognized at night and that training devices now in use are of great value.

To tell friend from foe at night demands thorough application of night-vision principles combined with great skill in daytime recognition. To recognize, one must see as efficiently as possible and this in turn means full use of night optic nerves or off-center vision. As explained in the June 1944 issue of the *Journal*, the eye relies on two different sets of nerves (rods and cones) for night and day vision. A 40-minute period of adaptation in darkness or red light is required before the night nerves (rods) are fully adjusted. This is absolutely essential; a man should no more think of going into any night operation without first dark-adapting than of going out blindfolded during the day. Once outside, he must use his eyes carefully, scanning in short, jerky sweeps and never looking directly at an object he wishes to see.

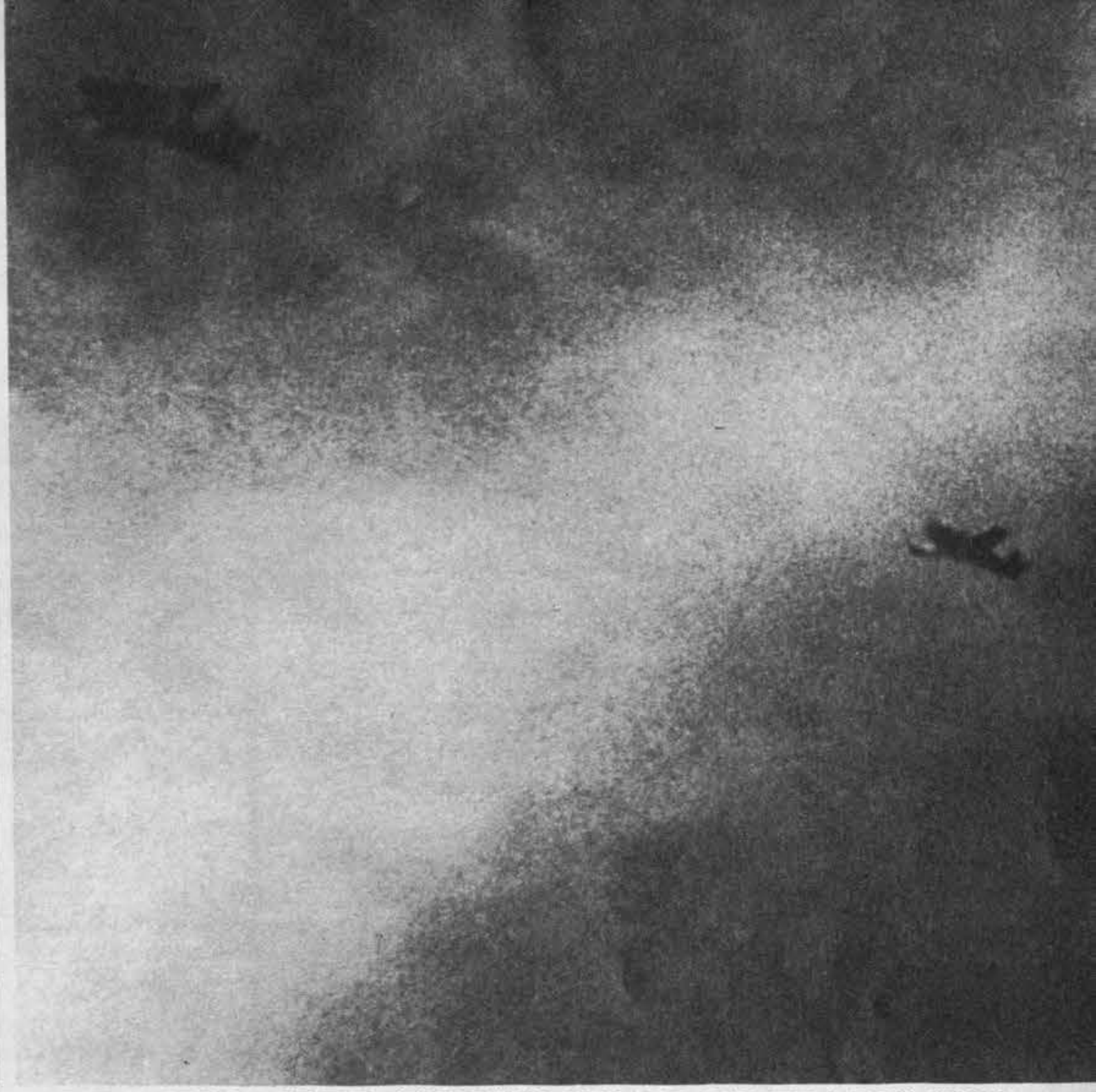
Equipped to see the plane as fully as darkness permits, a man must be thoroughly versed in day recognition to tell its identity. Since a plane will often appear only as a blurred sillograph, he must know its overall "personality" or total form (see pictures



B-26, F6F ACT OUT CHASE OF RAIDER BY NIGHTFIGHTER. LIGHT-COLORED CLOUD OUTLINES B-26



DIM LIGHT SILLOGRAPHS B-26. NIGHTFIGHTERS SHOULD TRY TO AVOID CLOUD BACKGROUNDS

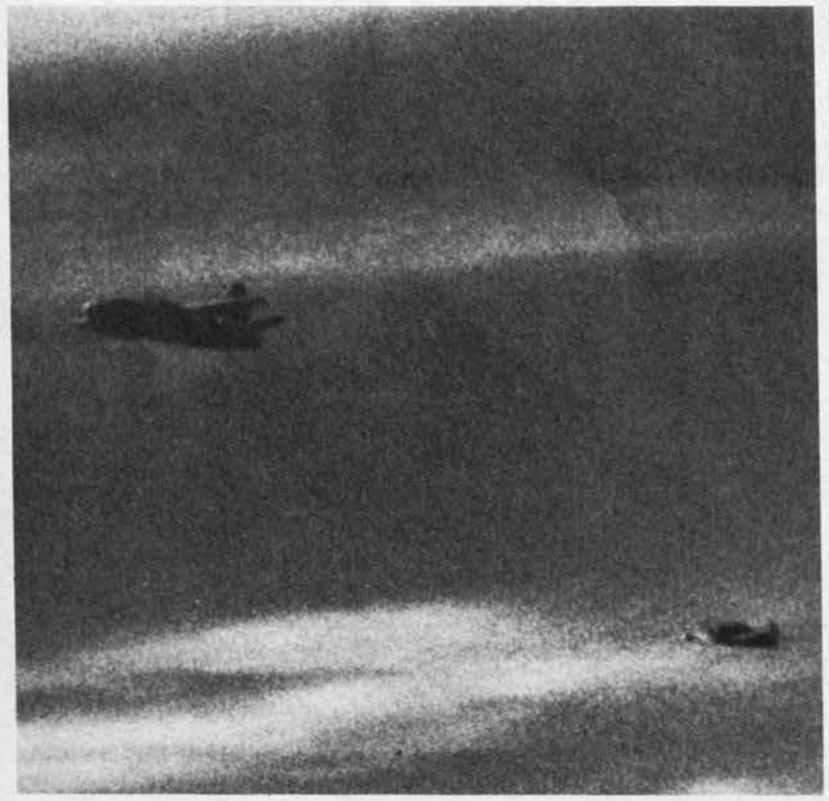


MARAUDER NOW FADES OUT WHILE HELLCAT TAKES FORM AS IT APPROACHES A CLOUD STREAK

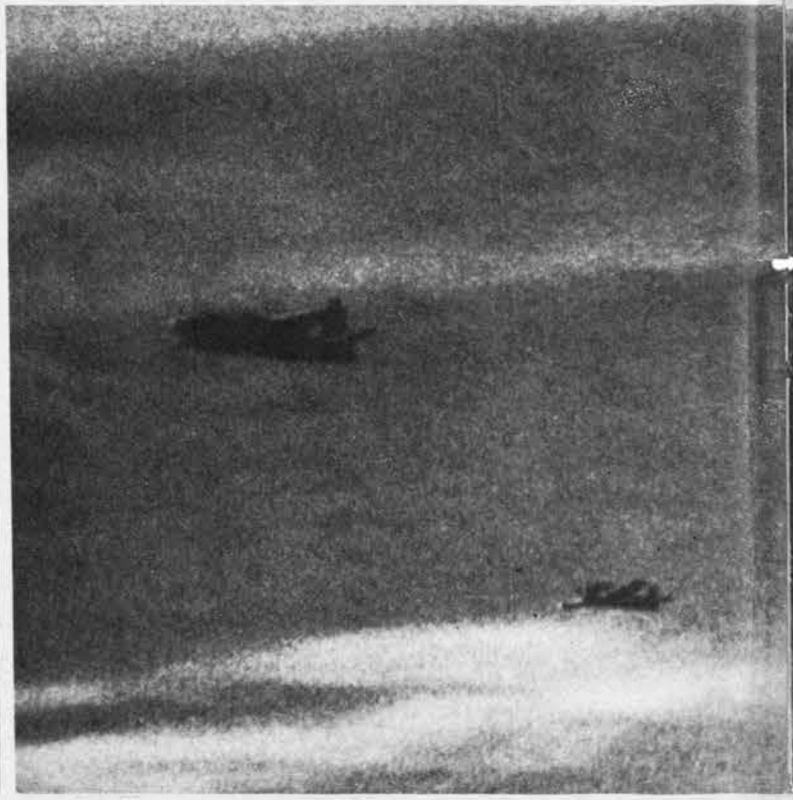
on these pages from a forthcoming Navy training film on night vision). He must also be familiar with individual features, since visual contact is likely to be brief and incomplete with only the fin or wing shape revealed. Finally, he must take utmost advantage of briefing and intelligence reports. With a knowledge of which planes are likely to be operational in his sector, the possible identities of an unknown plane can be narrowed down to a workable number.

In training personnel for this exacting task, the chief problem is the simulation of night conditions. The night-vision trainers used by the Navy and the AAF are versions of the RCAF device and demonstrate the need for adaptation and off-center vision. Three-dimensional models illustrate the effects of varying degrees of darkness (full moon, starlight, overcast, etc.) on different textures and colors. Familiar Army and Navy training devices such as slide projectors, shadowgraphs and synthetic gunnery trainers have been converted with rheostats, filters and pinhole diaphragms to teach recognition under night conditions.

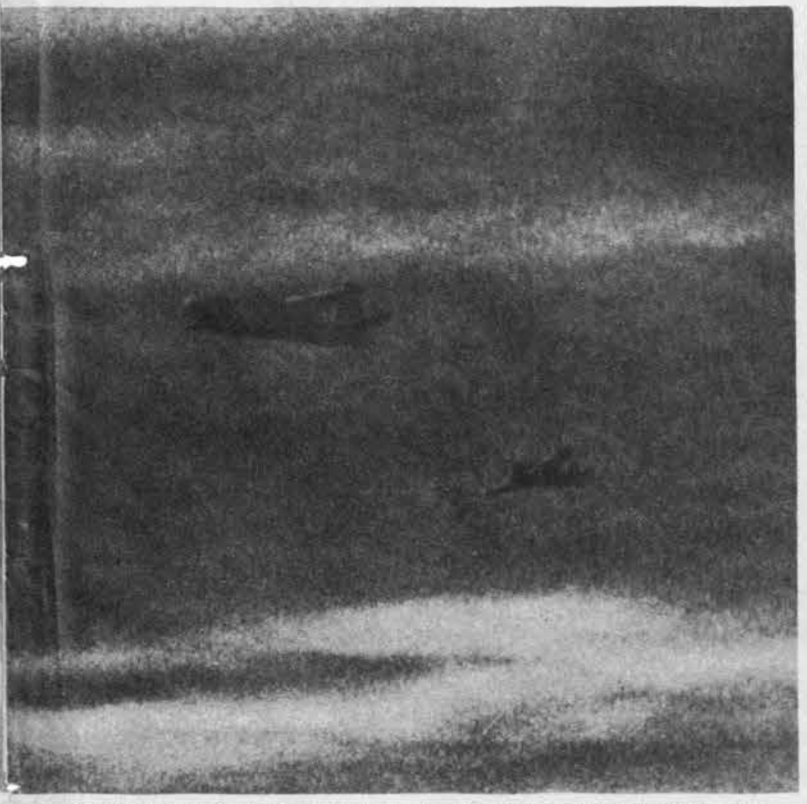
Like all phases of the night recognition program, this equipment is still in the experimental stage. Much of this increasingly important field remains to be explored. The key fact, however, has been established; if the techniques of night vision are thoroughly applied recognition will work at night. Hard work by instructors and students on recognition under night conditions will yield immediate results of great value and may open new potentialities for the future.



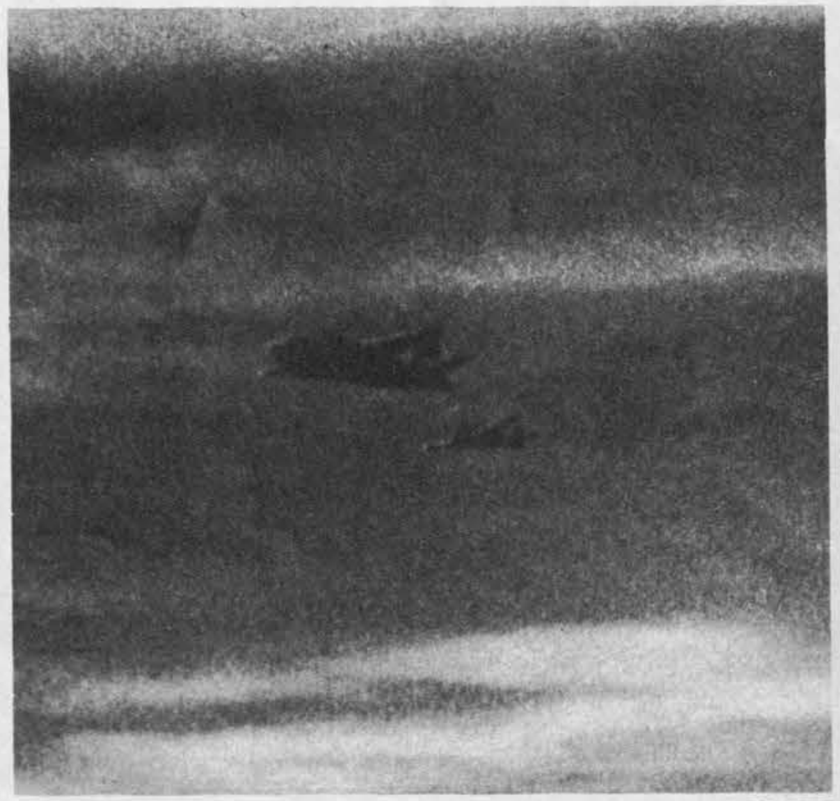
TRAINING FILM SHOWS FIGHTER APPROACHING FROM BELOW AND BEHIND



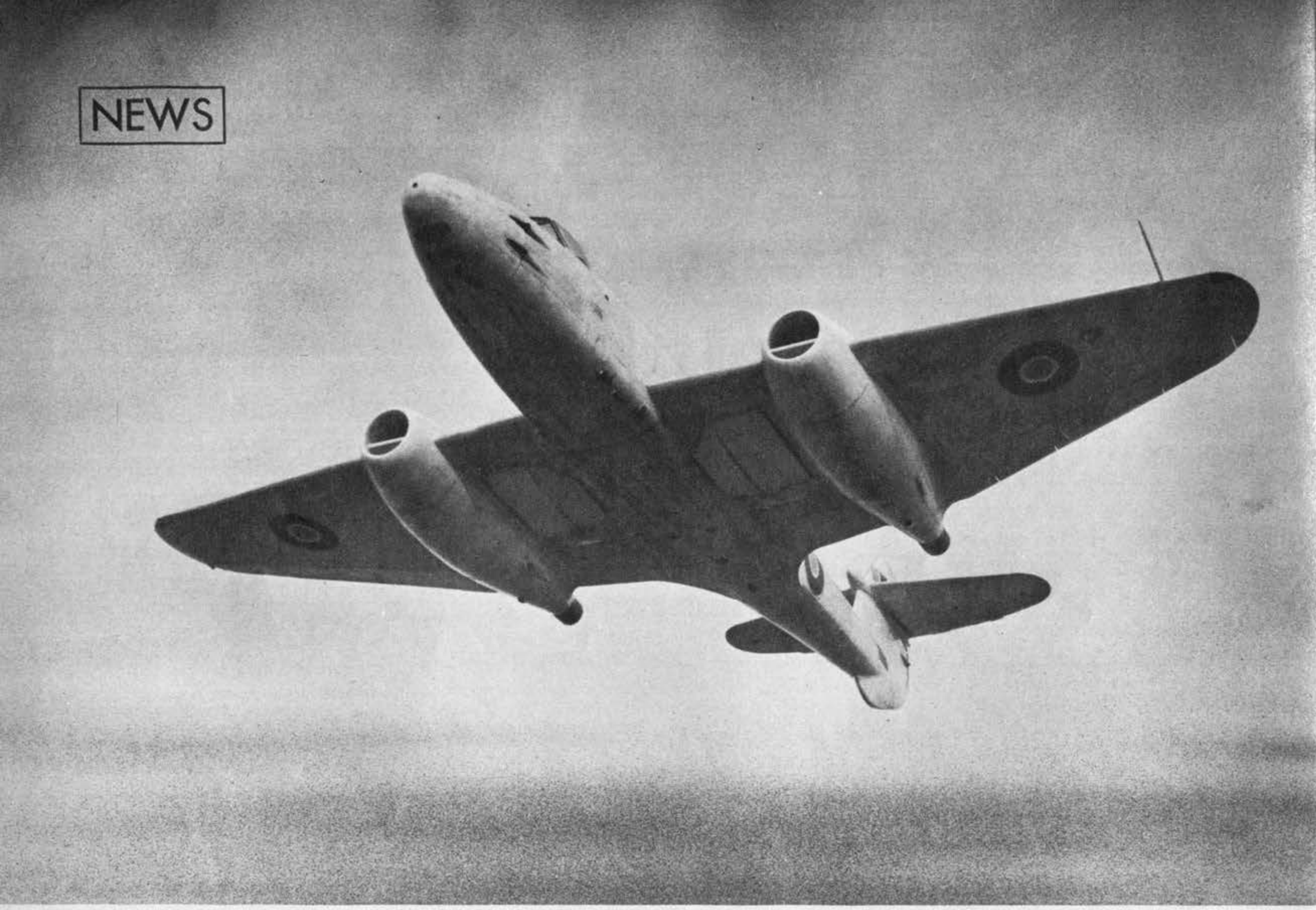
SQUARED-OFF WING MARKS F6F DRAWING NEARER IN THE DIMNESS



B-26'S FIN CAN STILL BE SEEN THOUGH NOSE OUTLINE IS BLURRED



NOW CLOSE BEHIND THE RAIDER'S TAIL, THE F6F IS IN POSITION TO FIRE



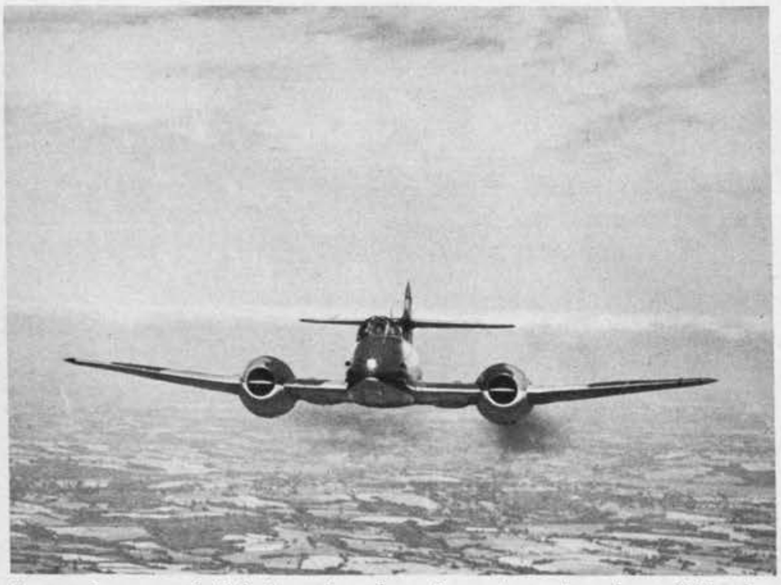
RAF'S NEW METEOR STREAKS ALOFT ON INVISIBLE THRUST OF ITS TWIN TURBO-JET UNITS. BROAD WING HAS IRREGULAR TAPER, ROUNDED TIPS

METEOR

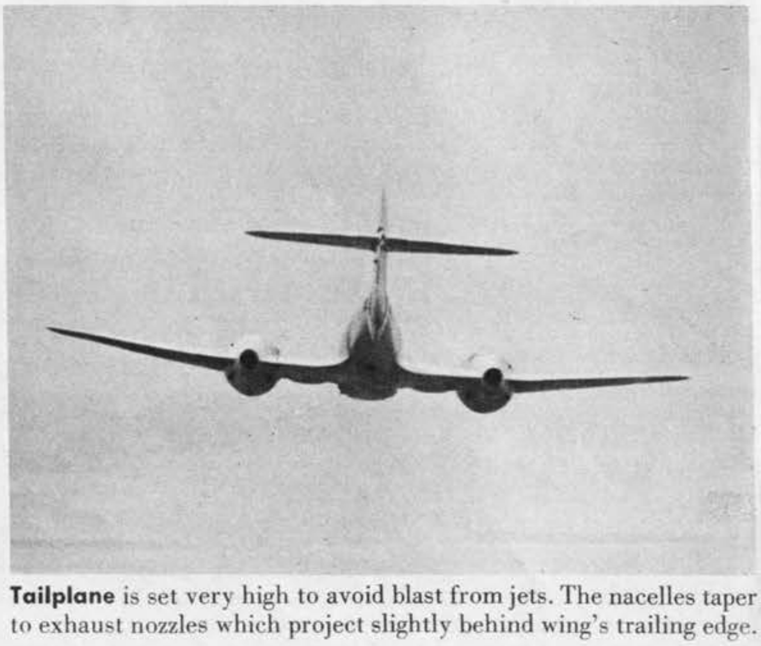
First British jet fighter to go into action has battled German robot bombs since last summer

Painstaking experiments in jet propulsion, carried on by the Allies for three years, have now reached a decisive stage with the RAF Meteor. Together with these first pictures comes the announcement that the twin-jet fighter made a successful debut against V-1 last August. Thus it is the first Allied operational jet warplane, America's P-59 having been assigned to training.

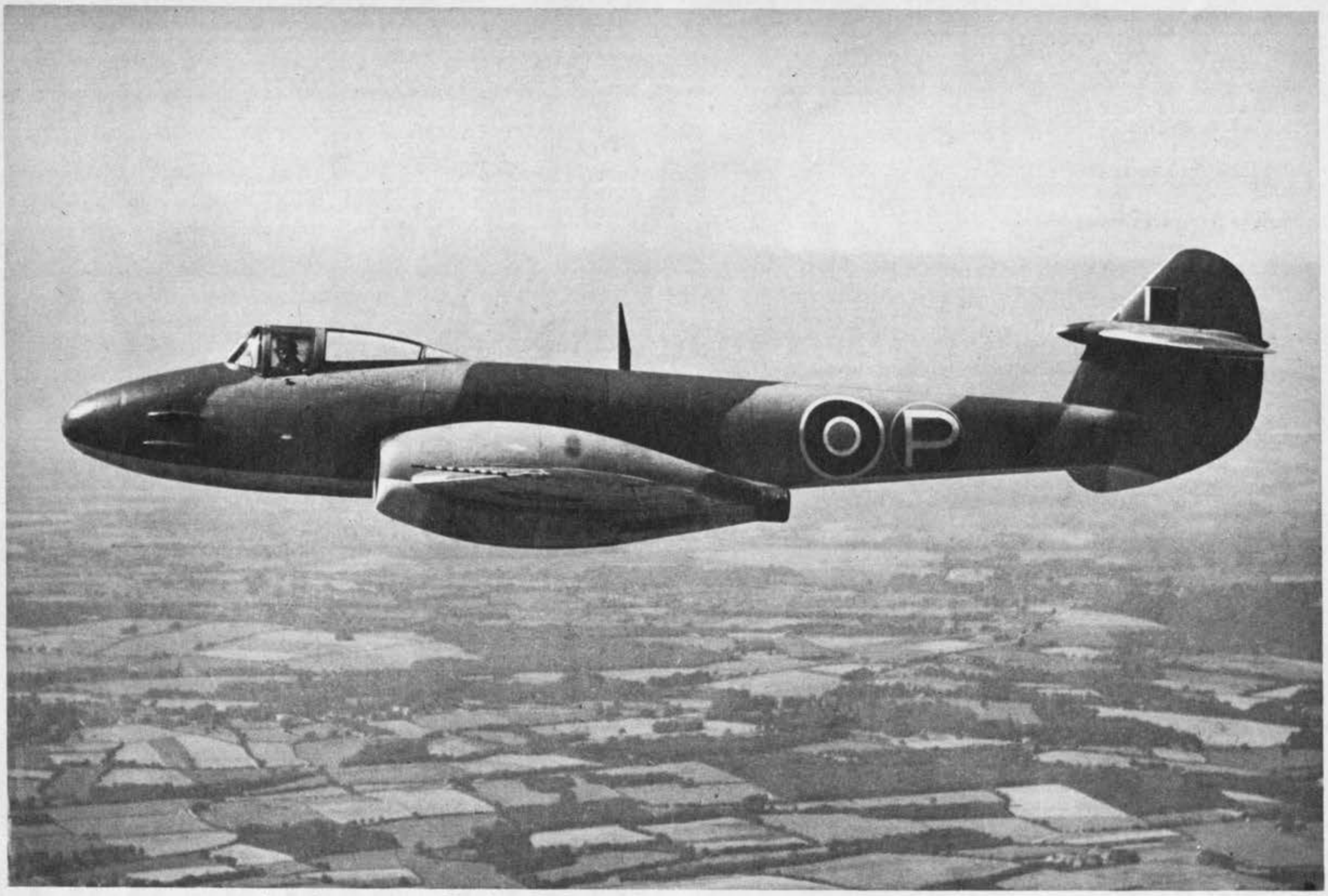
Produced by Gloster Aircraft, the Meteor is that concern's first important combat type since the Gladiator, prewar biplane. Turbojet units are made by Rolls-Royce. No details of performance have been revealed except in a statement that the speed is superior to that of the flying bomb. Propulsion units burn paraffin.



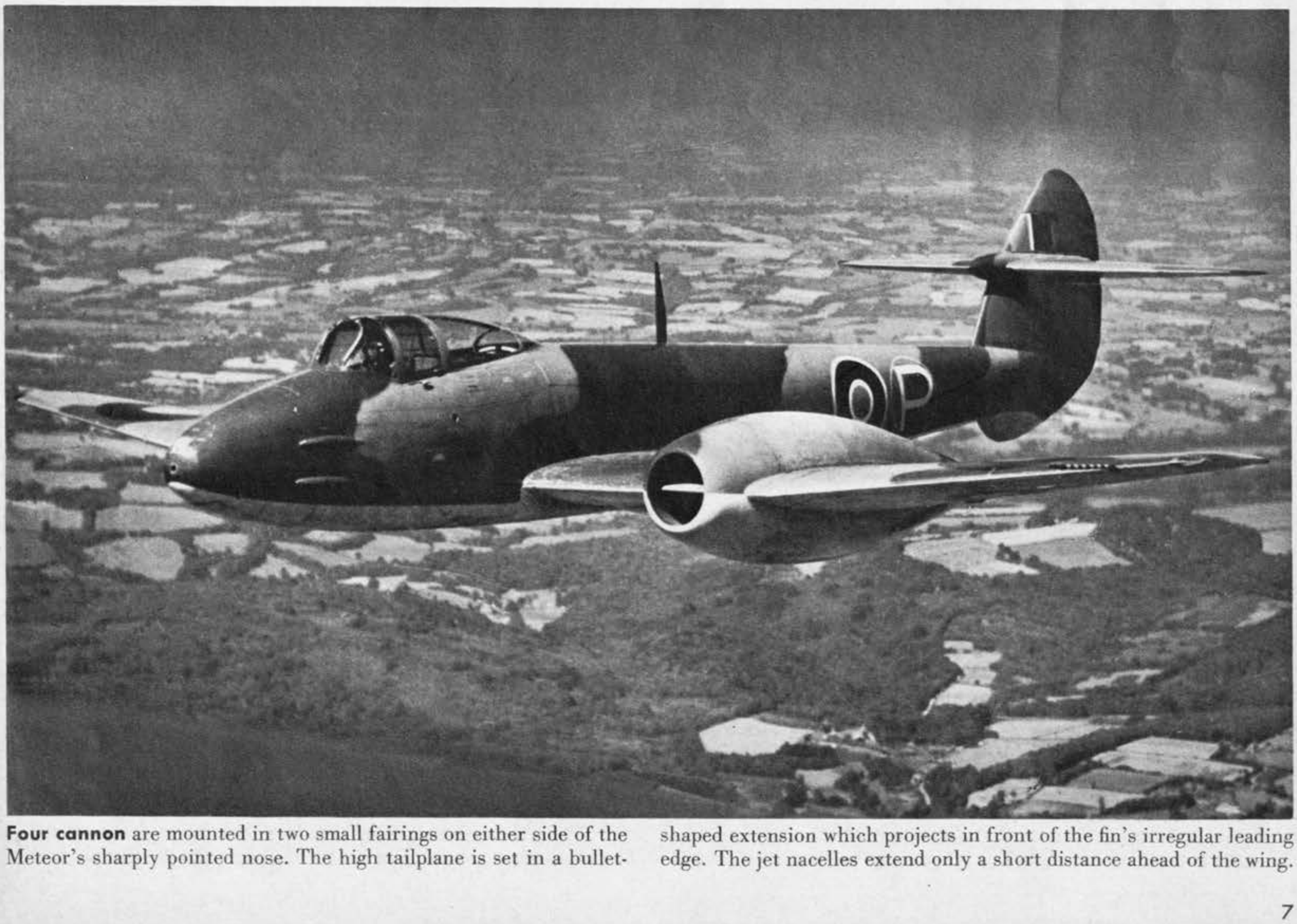
Meteor's span of 43 ft. is rather short for twin-engine plane. Wing has slight dihedral on outboard panels. Jet units are centered on wing edge.



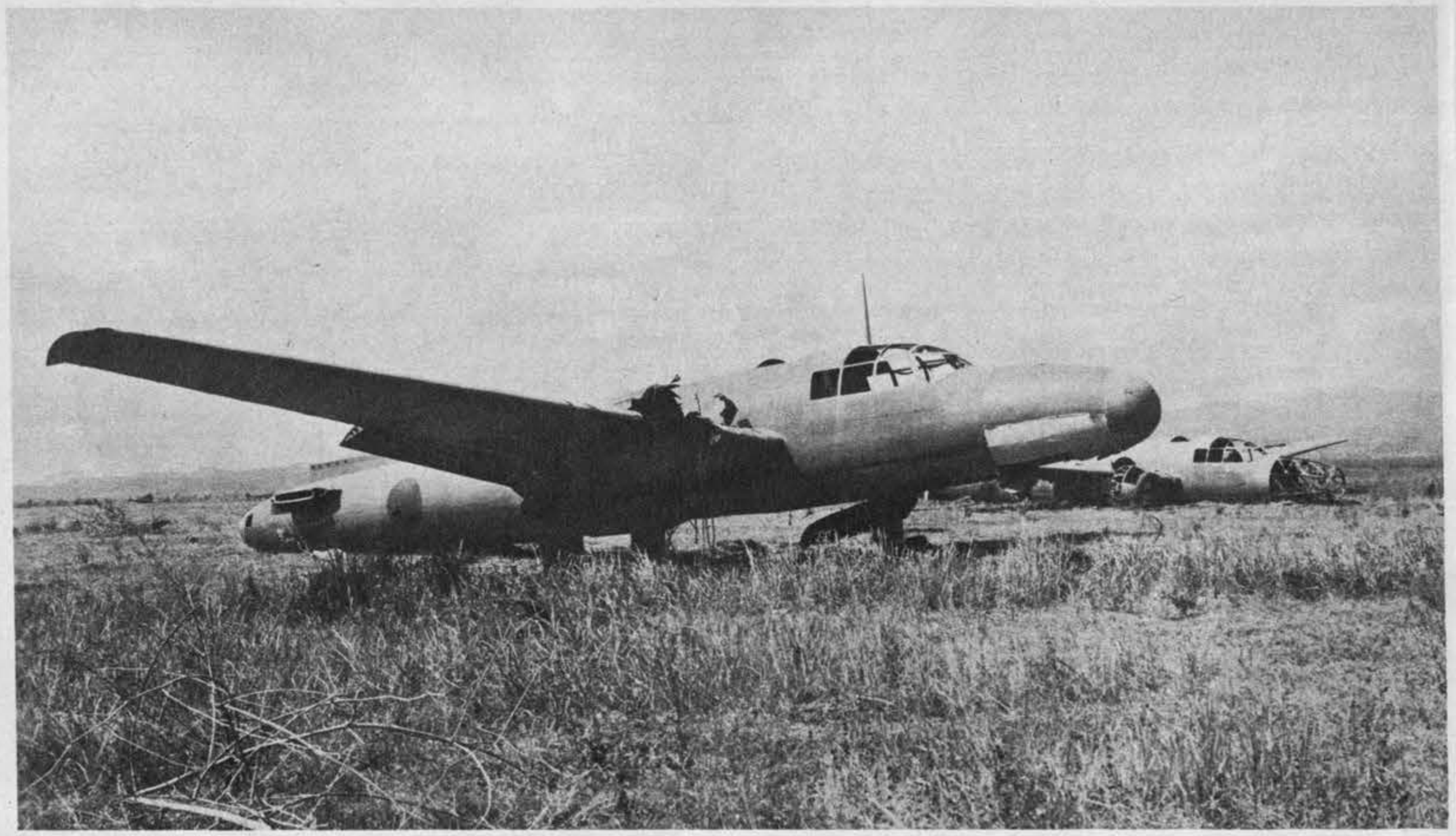
Tailplane is set very high to avoid blast from jets. The nacelles taper to exhaust nozzles which project slightly behind wing's trailing edge.



Fuselage of Meteor, 41 ft. 5 in. long, is smoothly slim. Uncluttered by airscoops or radiator exhausts, the jet fighter's design is extremely clean aerodynamically. Modified blister cockpit is far forward. Note asymmetrical shape of fin and rudder extending below, behind fuselage.



Four cannon are mounted in two small fairings on either side of the Meteor's sharply pointed nose. The high tailplane is set in a bullet-shaped extension which projects in front of the fin's irregular leading edge. The jet nacelles extend only a short distance ahead of the wing.



Peggy is the fastest bomber the Japs have yet produced. Recognitionally it resembles both Betty and Helen. Of the two versions found so far, the one above is unarmed, has plywood nose and tail cone. The side view here makes apparent the similarity between Helen and Peggy.

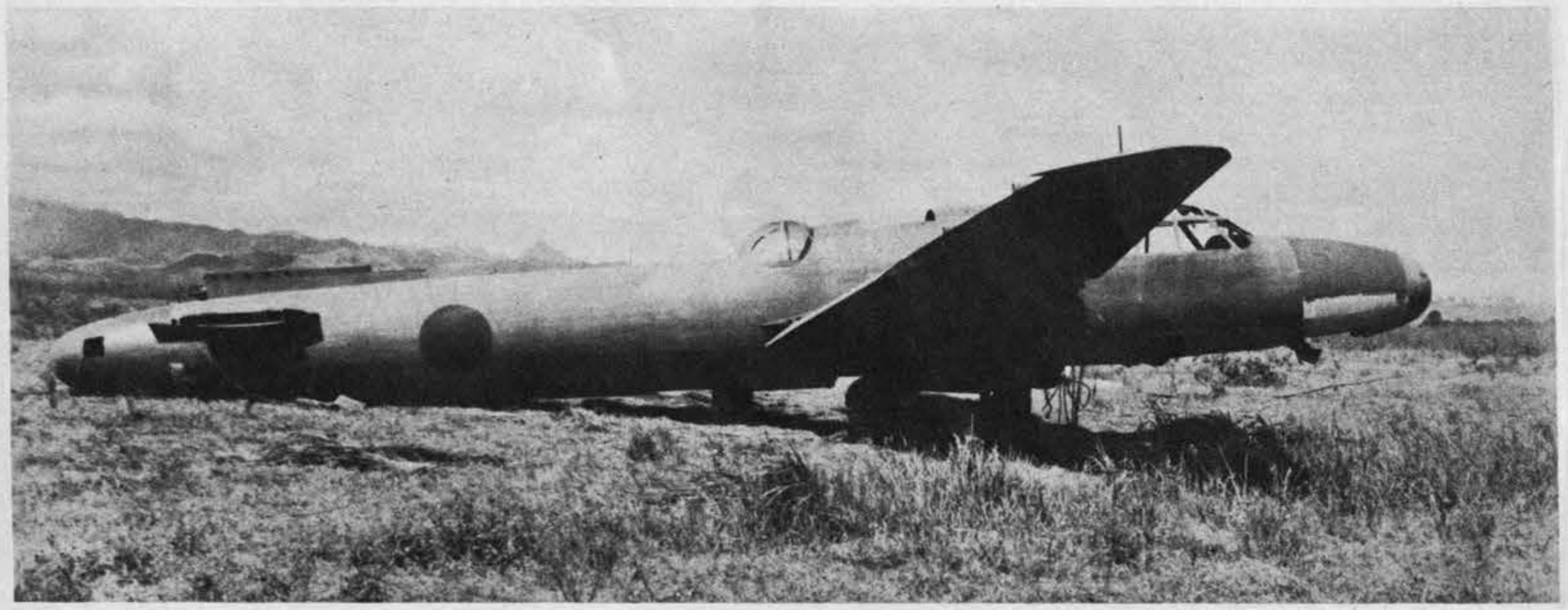
Bomber version of Peggy has a plexiglass tail turret and nose (*see p. 15*). The high triangular tail is prominent and is set well forward.

PEGGY AND GEORGE NEW JAP THREATS

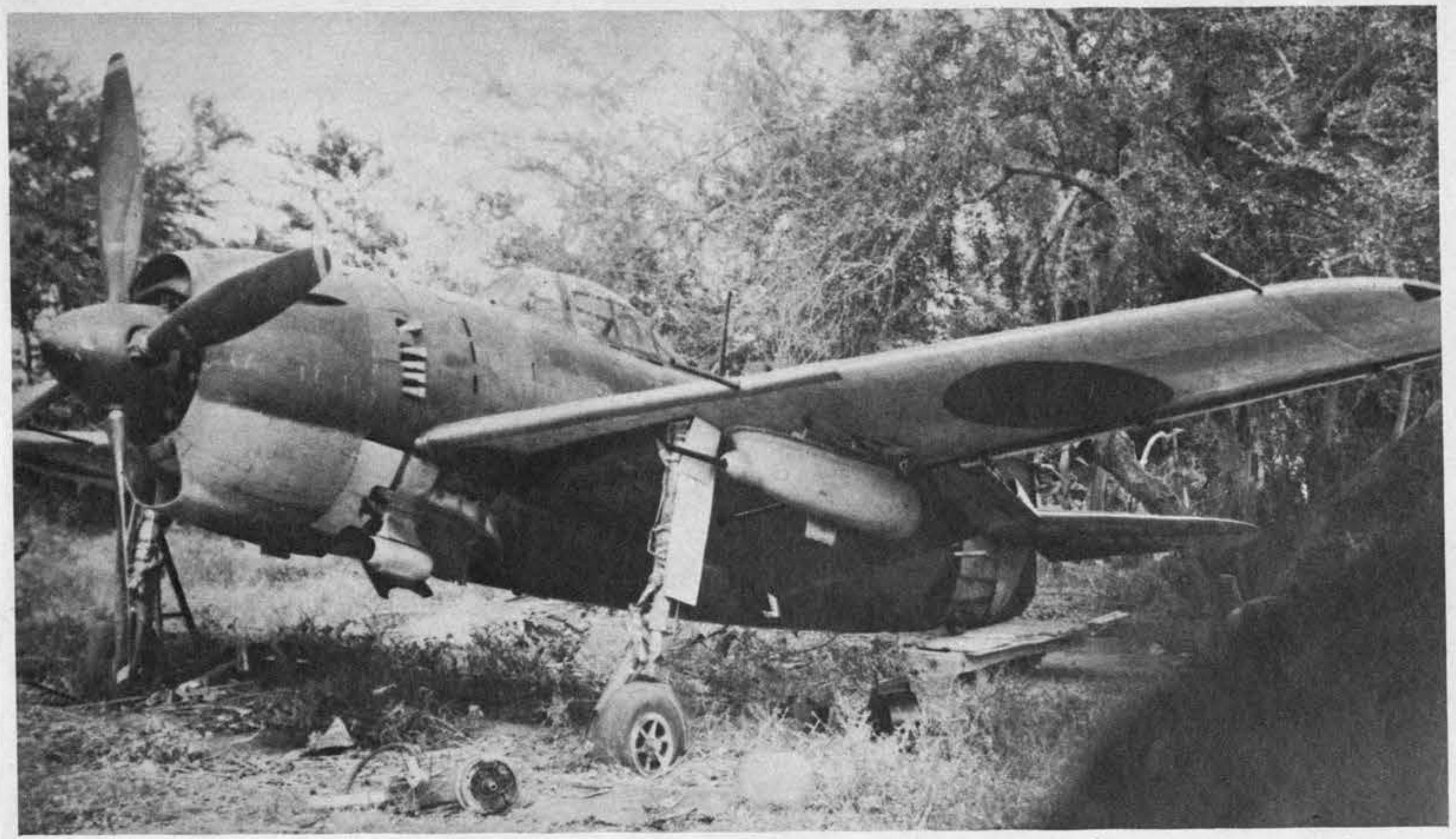
Added to the ever-increasing Japanese air armada are two new planes, Peggy and George, both of which will undoubtedly be important in future operations. George, a navy fighter, may well prove to be the most efficient the Japs have yet produced.

The absence of arresting gear on all Georges so far examined indicates that they were not designed for carrier operation. The most heavily armed Jap fighter yet encountered, George has a top speed of over 400 m.p.h. and high rate of climb. It is also the first Jap navy fighter examined that has fully self-sealing tanks. George is probably planned for air-to-air bombing as well as ground attack and short-range interception.

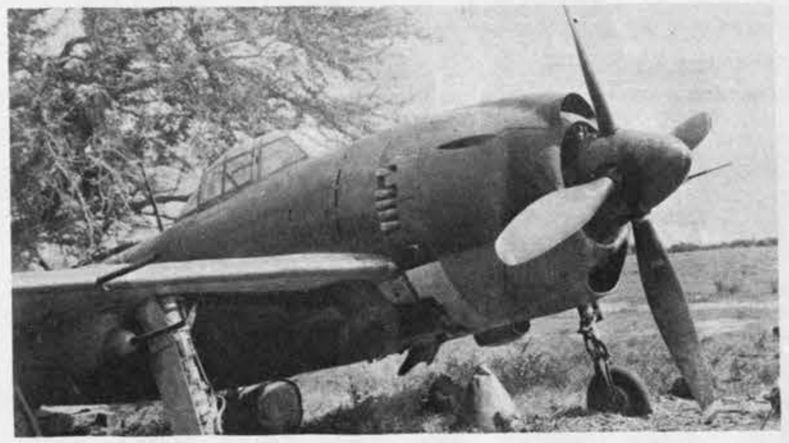
Peggy, which looks somewhat like both Betty and Helen, is primarily a bomber. It is the first Japanese army bomber found to carry torpedo racks, indicating a possible trend toward defensive tactics on the part of the Japs. Peggys equipped with the glass-enclosed nose will be more frequently encountered than the other, unarmed version. Seen in plan view Peggy resembles Betty while side view makes it look like Helen.



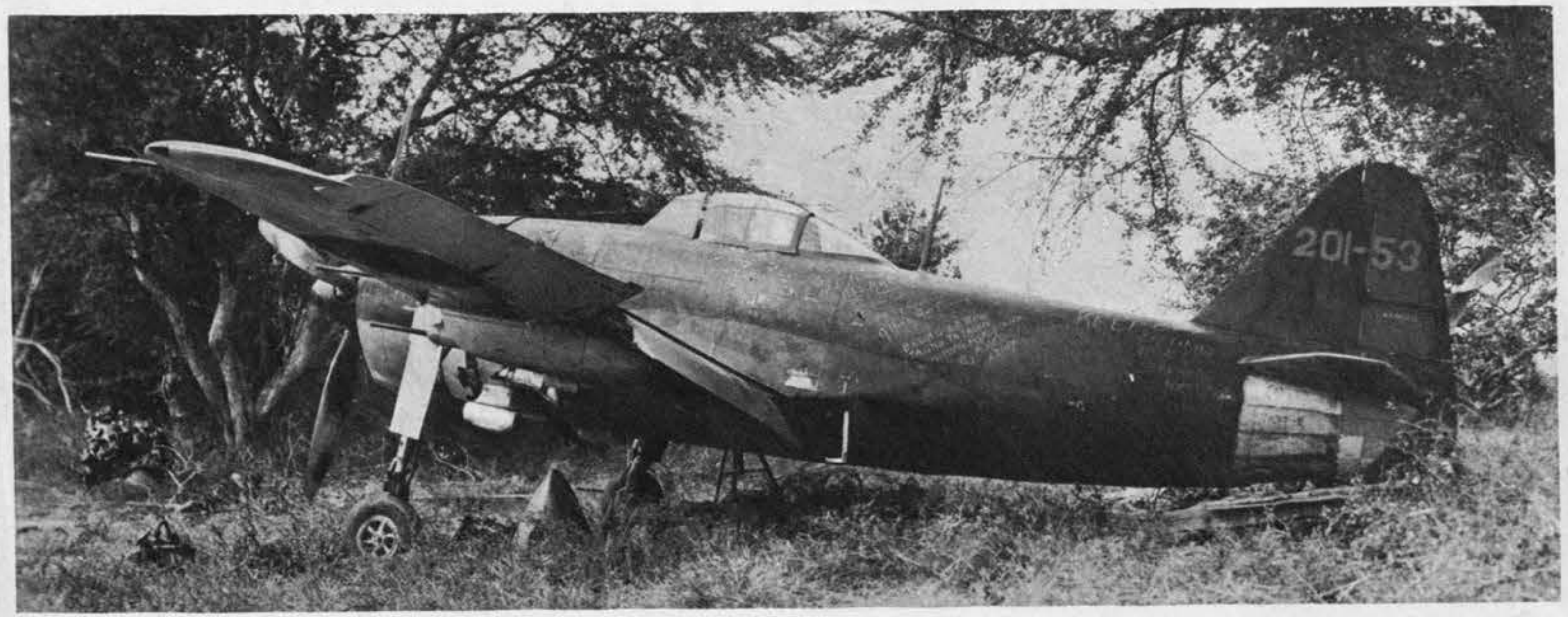
Rounded, solid-nose version of Peggy is possibly used as a reconnaissance bomber. Plexiglass tail turret has been replaced by plywood cone. The fuselage is somewhat circular and slimmer aft than Betty's. The wings have greater taper on trailing edge; tips are sharply raked.



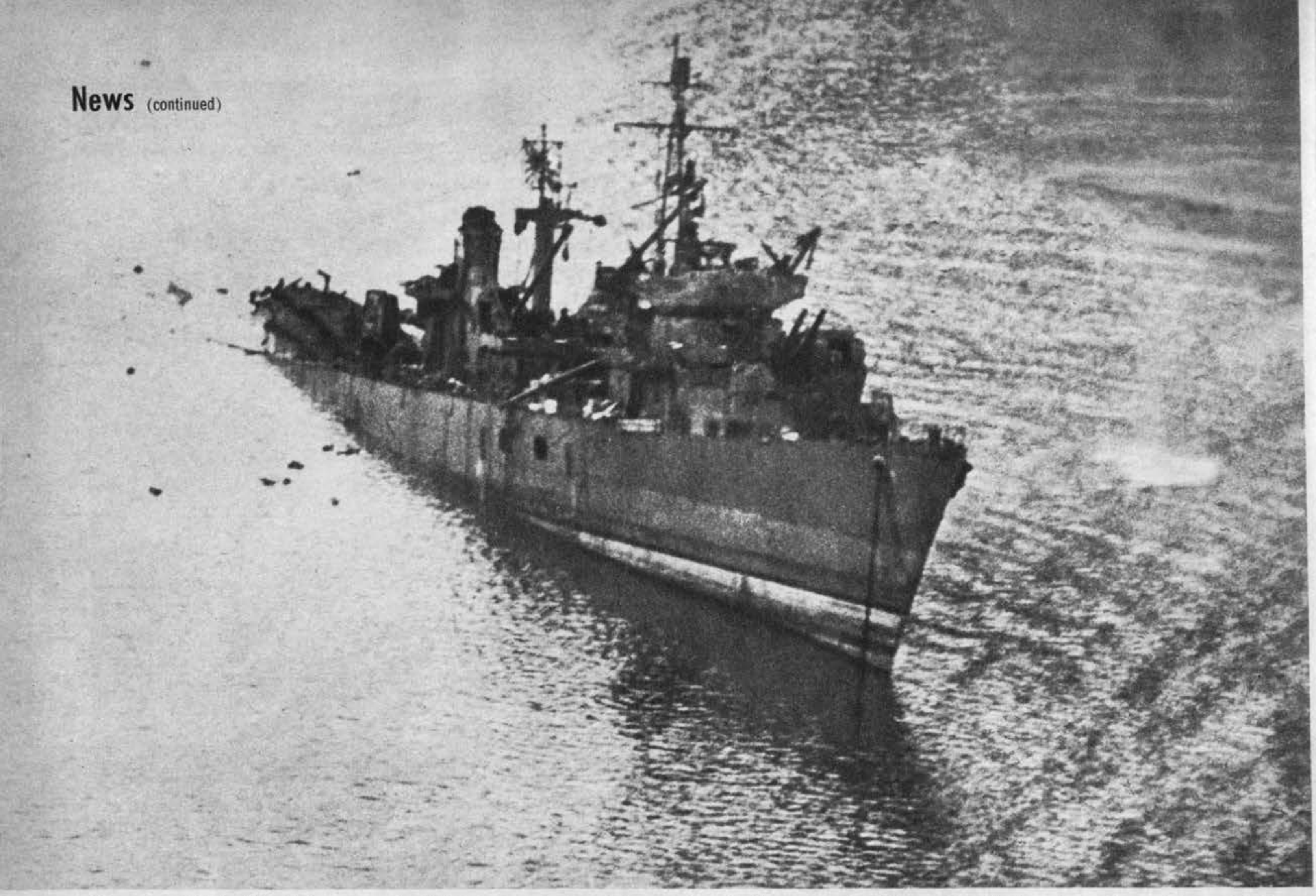
George's deep, thick fuselage, almost barrel-shaped, is not typical of other Japanese fighters. There is, however, a marked similarity between the cockpit enclosures of George and Zeke. George has an extremely large spinner, and a large airscoop underneath the cowling.



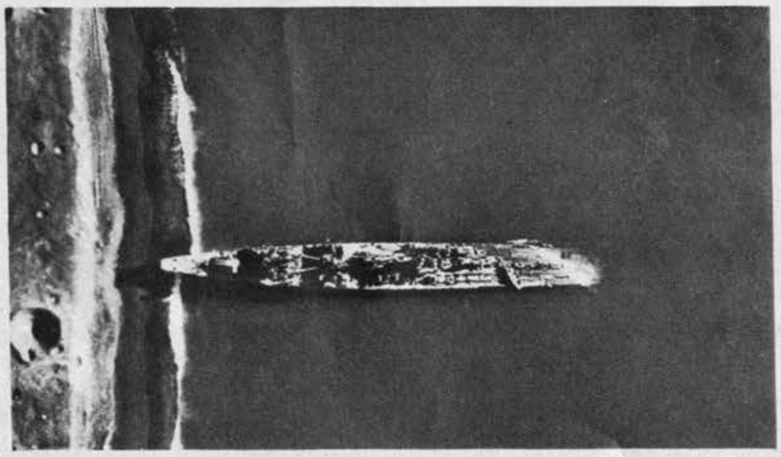
Package guns, one under each wing, are 20-mm., as are the wing-mounted cannon directly above them. Two 7.7-mm. MG's are in nose.



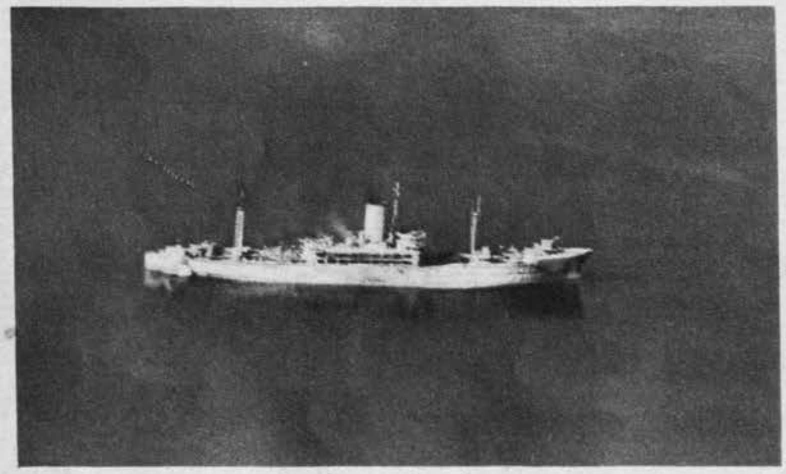
George's low mid-wing, set distinctly higher than the low wings on earlier Jap fighters, is more like that on U. S. types. Broad fin and rudder is triangular. Writing on the fuselage is a warning to souvenir hunters who might dismantle plane before analysis has been made.



New Jap APD's, like this one sunk off Leyte, are designed to speed fresh troops to besieged islands. Troops disembark in barges which take to the water via skids on the sloping stern. Heavy kingpost between trunked stack and bridge distinguishes 342-ft. APD from destroyer.



Aground at Iwo Jima, an APD shows cleared deck aft with landing boat askew on unloading tracks. Note kingpost forward of amidships.



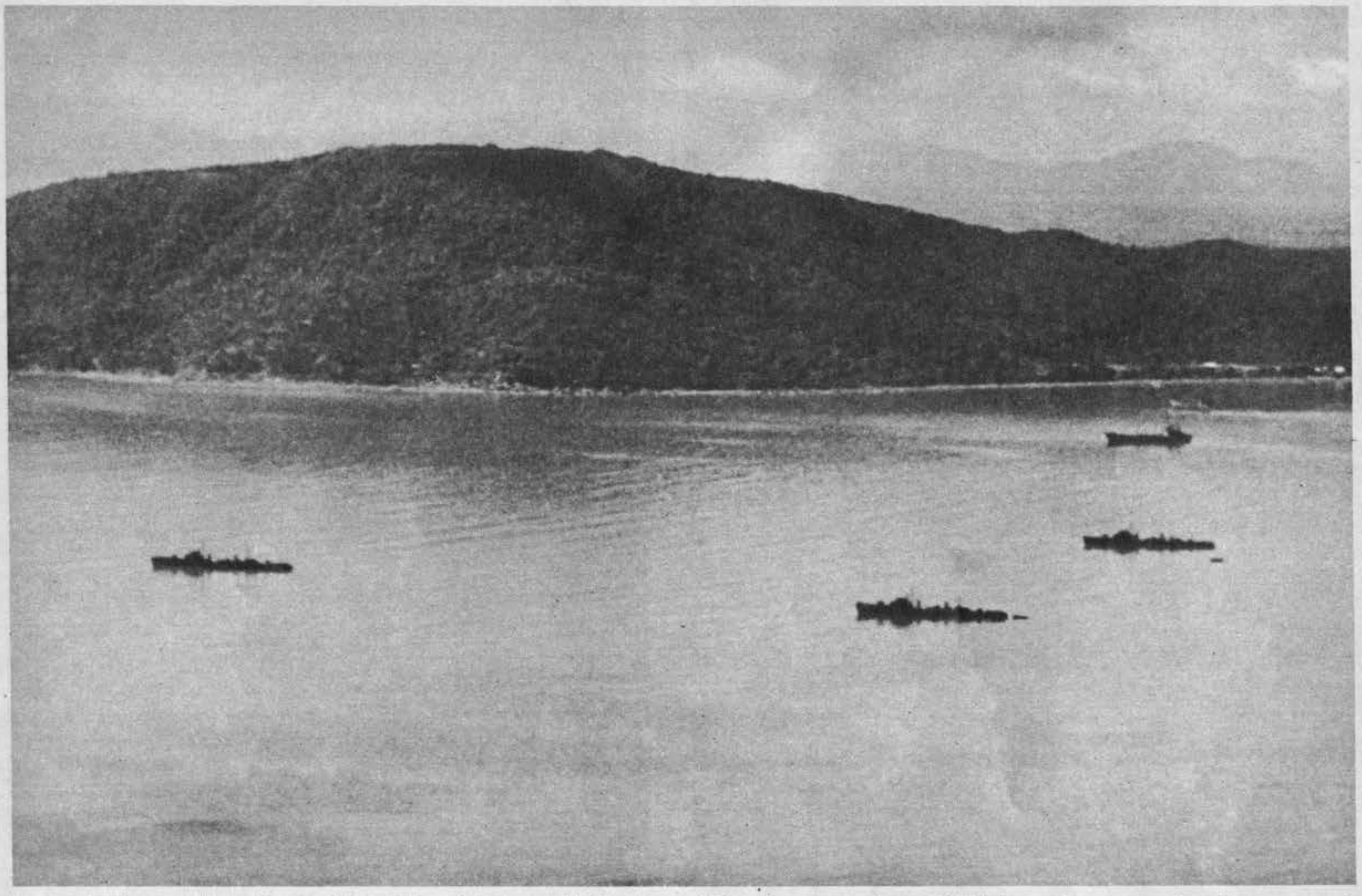
Naval auxiliary Irako has big stack and mast set on superstructure. Kingposts are aided by deck cranes, small boats in quick unloading.

AERIAL REPORTS ON THE JAP NAVY

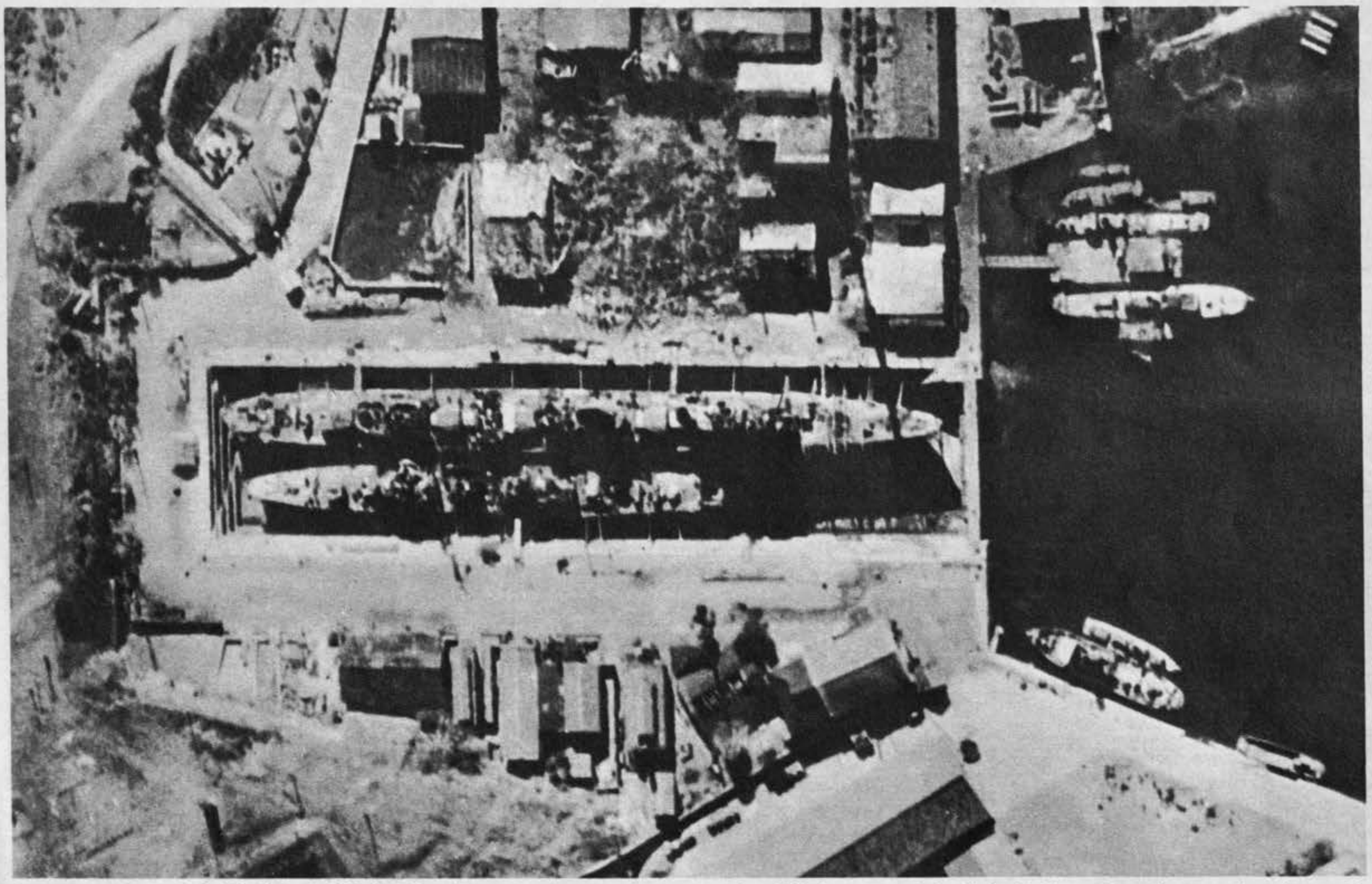
Although Japan has taken a severe drubbing at sea, her navy remains stubborn and resourceful. Jap shipyards are the scene of intense activity as older ships are repaired and refitted and new replacements rise on the ways. However, now that we have fought our way close to Japan itself, we can keep the enemy's feverish efforts to re-arm under constant aerial observation. For two months, Army bomber commands have thoroughly photographed the great nests of naval power in Japan's home islands. A wealth of advance intelligence on future Jap ships has thus been added to the combat cameras' running commentary on units already operational.

The Japanese are now concentrating on swift amphibious reinforcement of forward islands under attack. This is reflected by the vehicle-carrying LST-type (February *Journal* page 10) and the troop transport APD shown here. Of rugged design and armed with twin five-inch guns, the APD will also eke out Japan's overworked destroyers. Meanwhile the Japs are restocking depleted DD squadrons with the Matsu Class (*upper right*), a simplified design that can be built quickly.

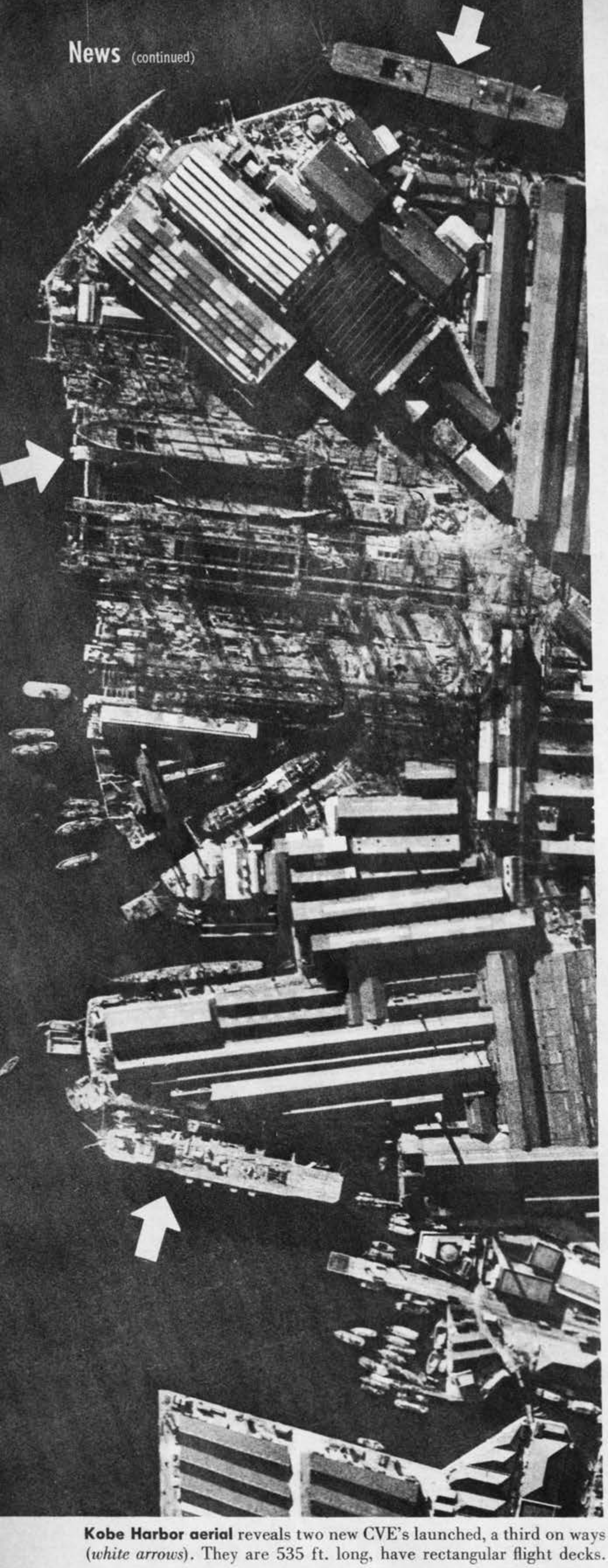
Finally, the enemy is hard at work building up his carrier strength. Recco photographs of a new CV class and three nearly completed CVE's (*page 12*) show that Japan still packs a potential wallop in the all-important field of naval aviation.



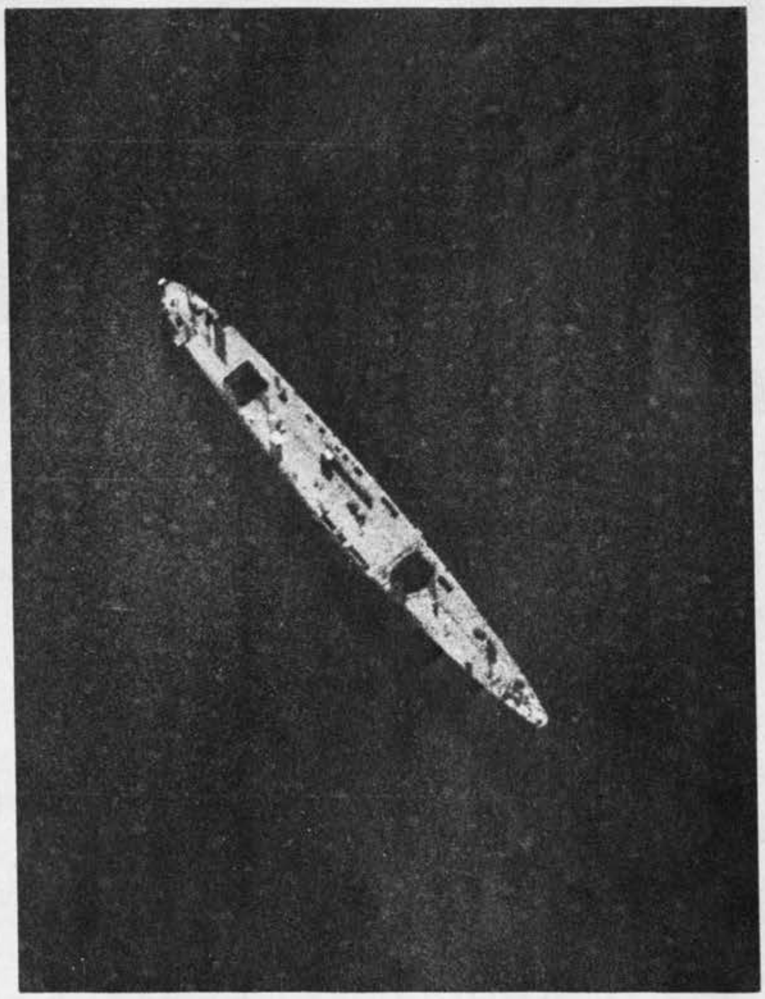
Low, widely spaced stacks give Matsu Class destroyers distinctive profile. Matsus are built in quantity to supply Japan's urgent need of DD replacements. Some 320 ft. long, they are smaller than most modern Jap DD's and have low bridge instead of customary high, box type.



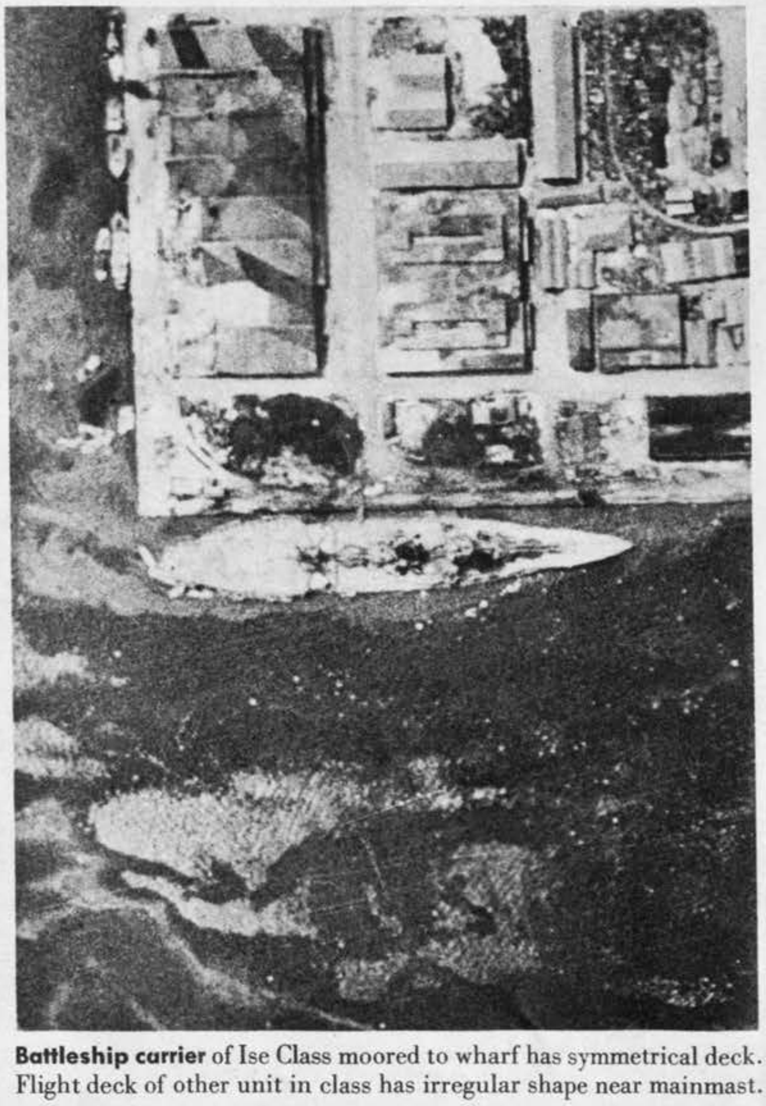
Japanese drydock holds Fubuki-Hibiki Class destroyer (*top*) undergoing refit alongside smaller DE UN-1. A small forward stack distinguishes Hibiki group of the Fubuki Class. Note three enclosed torpedo mounts amidships. The after turrets appear to be temporarily removed.



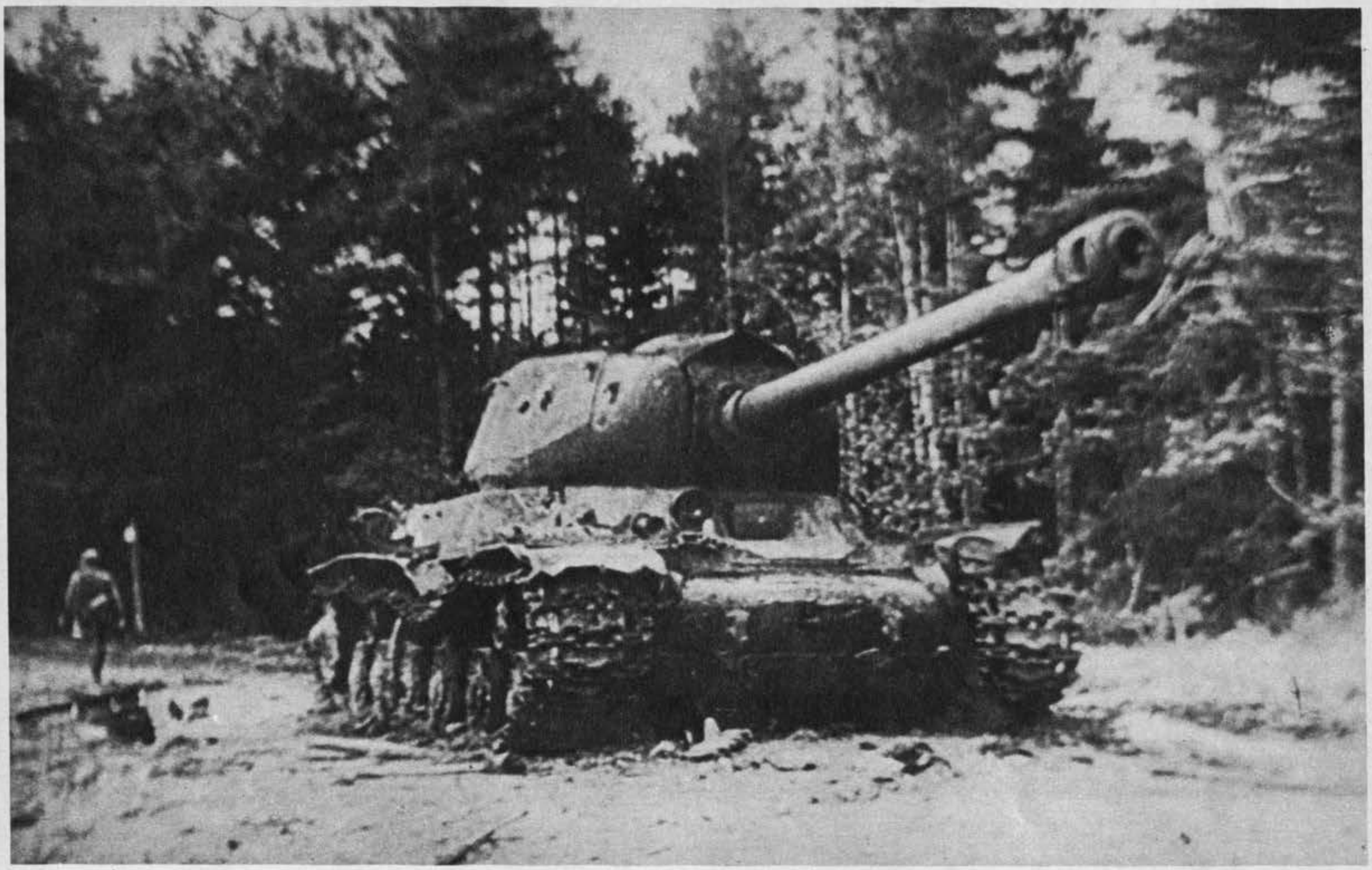
Kobe Harbor aerial reveals two new CVE's launched, a third on ways (*white arrows*). They are 535 ft. long, have rectangular flight decks.



Trim lines, 720-ft. length of unfinished CV suggest conversion from large cruiser. Flight deck has not yet been added. Note elevator wells.



Battleship carrier of Ise Class moored to wharf has symmetrical deck. Flight deck of other unit in class has irregular shape near mainmast.



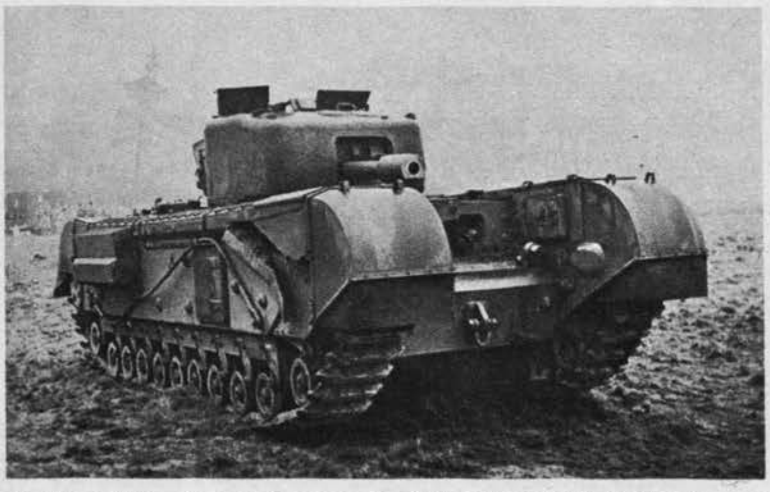
Big 122-mm. gun makes the powerful Joseph Stalin the world's most heavily armed tank. Latest development of the KV series, it has the older tanks' running gear but a more rounded hull front and a much bigger turret with a distinctive rounded cupola mounted at the rear.

STALIN AND CHURCHILL

Russia's mighty Joseph Stalin tank, which has been shattering German panzers in the East, is now known to be a variation on the KV design. It differs from its immediate predecessor, the KV-85, by carrying a 122-mm. gun with muzzle brake and having a bigger turret with a rounded rather than cylindrical cupola. Under new designation, tank shown on pages 34–35 of last month's *Journal* and called KV-85 is actually the Stalin.

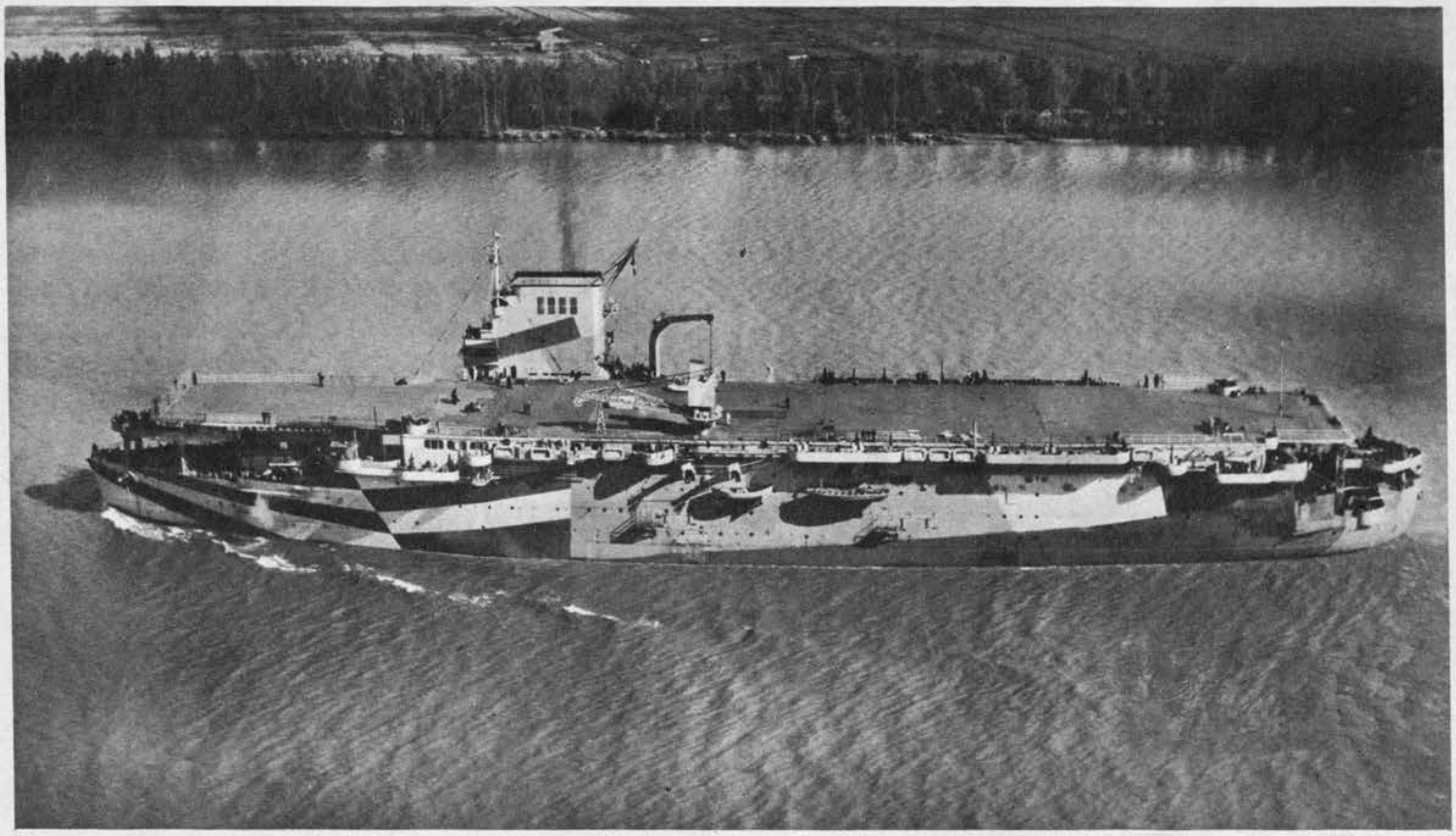
To the veteran Churchill heavy tank British have added yet another type of weapon, a 95-mm. howitzer. The Churchill may also mount a 75-mm. gun and a big mortar called the "Petard."

Stalins at Poznan show round outlines of turret and hull fronts. The 122-mm. guns can penetrate the Nazi King Tiger's tough armor.



Heavy collar, set over the muzzle of the Churchill's big howitzer, is squared off at the bottom. Gun is mounted slightly to right of center.

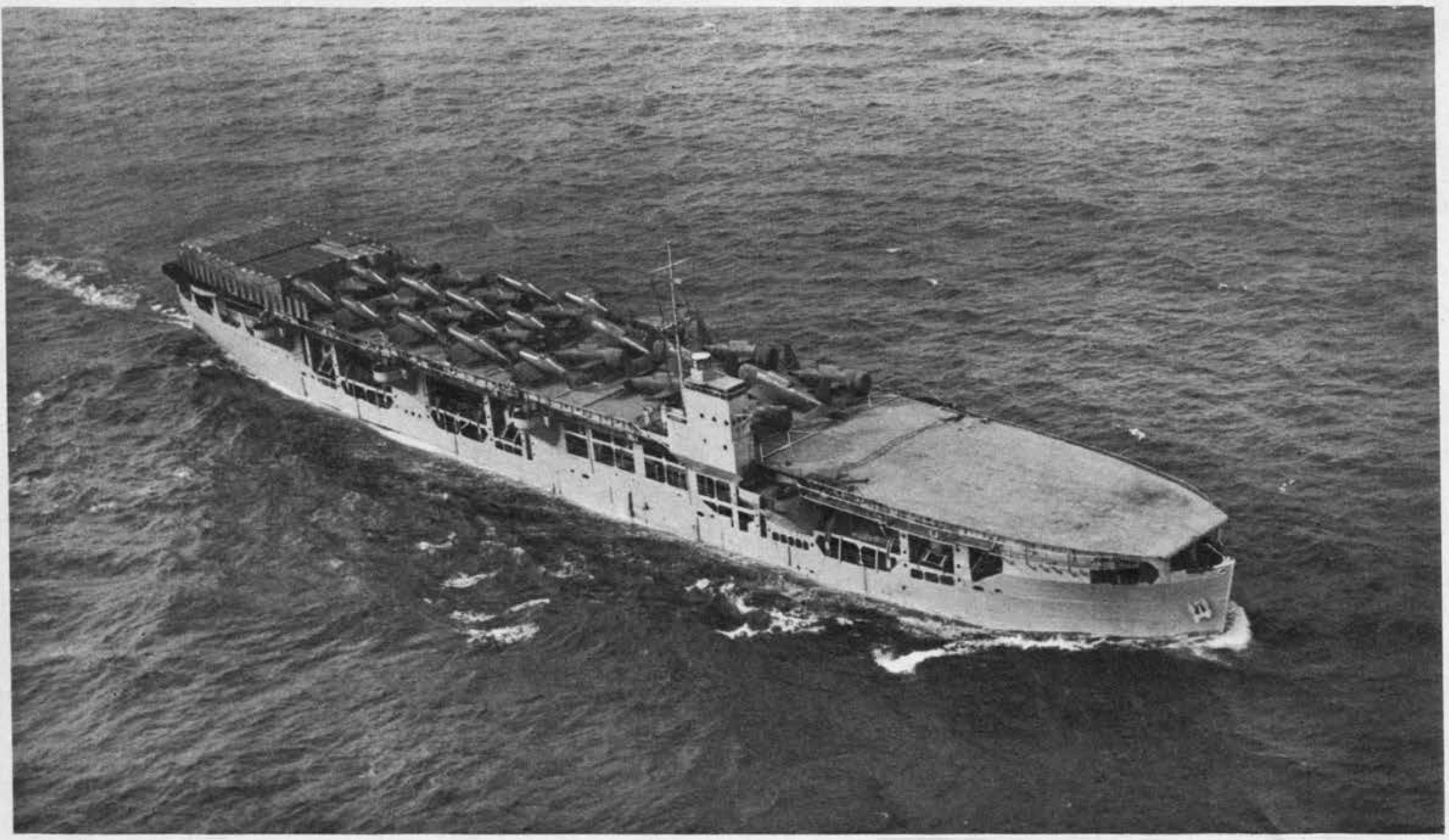
New 95-mm. howitzer is carried by tank on the left in Churchill group. Tank is used as a close-support weapon in tank-infantry attack.



French Béarn, originally a CV, has been refitted as an AKV and now serves as a transport carrier rather than a combat vessel. Flight deck has been clipped at both ends, AA concentrated in sponsons along the sides, hoists and cranes added to improve the loading facilities.

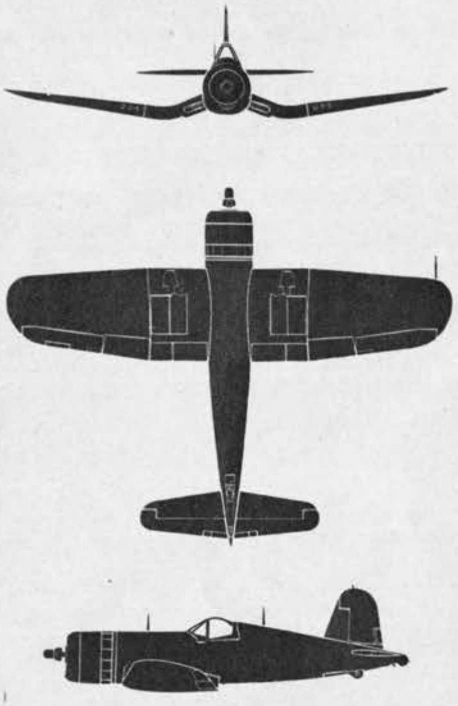
NEW TRANSPORTS CARRY AIRCRAFT

Two auxiliary carriers have recently come into Allied service. The Béarn (*above*), the only prewar French carrier, was immobilized at Martinique until 1943; later she was refitted to transport a maximum load of planes. The British MAC (Merchant Aircraft Carrier) is a new-type cargo ship. MAC's are converted tankers and freighters, can carry a big load of planes without materially impairing their cargo-carrying ability. These ships will relieve fighting CV's of arduous transport work.



British MAC ship here carrying load of Corsairs and Vengeances is a merchant ship conversion, her curved flight deck replacing the former superstructure. The freeboard on tanker conversion, like H.M.S. Acavus (*above*), is more broken than on the freighter type.

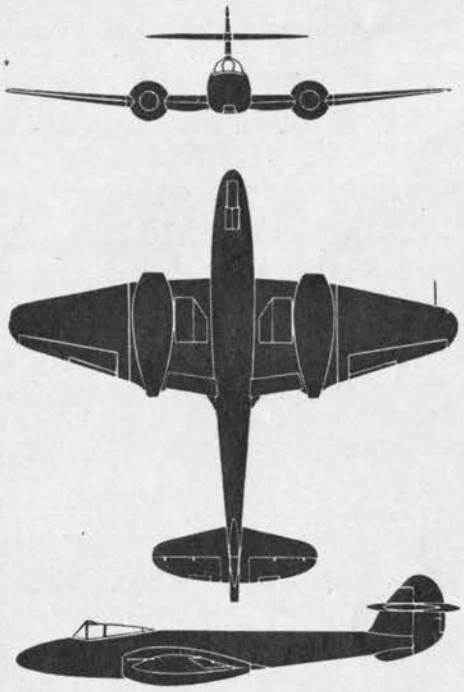
NEW AND REVISED AIRPLANE SILHOUETTES



F4U-4

SPAN 41 FT. LENGTH 33 FT. 4 IN.

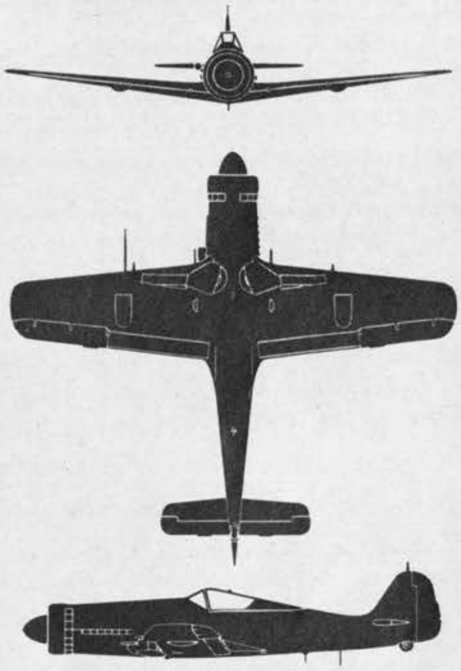
AIRSCOOP DEEPENS NOSE OF THE CORSAIR



METEOR

SPAN 43 FT. LENGTH 41 FT. 5 IN.

METEOR IS THE RAF'S FIRST COMBAT JET

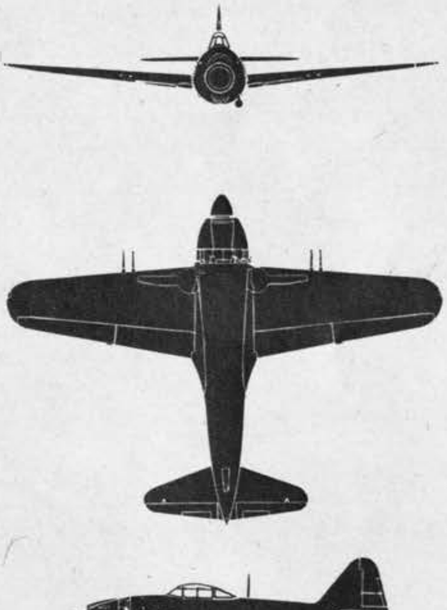


FW-190D9

SPAN 34 FT. 6 IN. LENGTH 33 FT. 11 IN.

INLINE ENGINE LENGTHENS FW-190'S NOSE

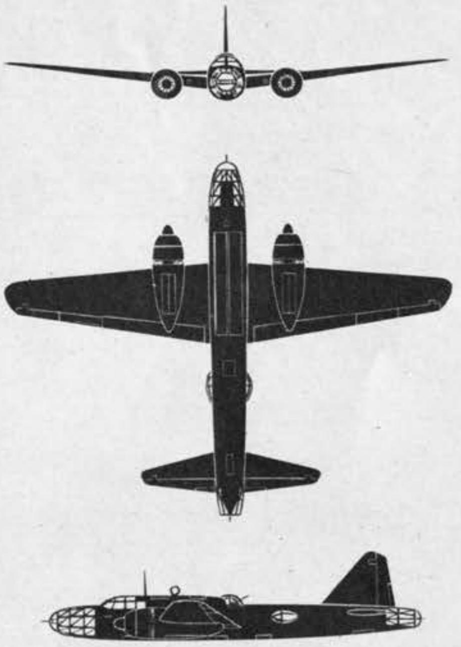
Allied and Nazi developments are shown above. Head-on view of the Corsair has been changed by the addition of an airscoop below cowling. This modification gives the F4U a deeper, heavier nose. Britain's twin-nacelle Meteor (*see pp. 6–7*) is the Allies' first jet-propelled airplane to fly in active combat. Installation of the Jumo-213 inline engine gives latest FW-190 a longer blunt nose.



GEORGE 11

SPAN 39 FT. 4 IN. LENGTH 29 FT. 7 IN.

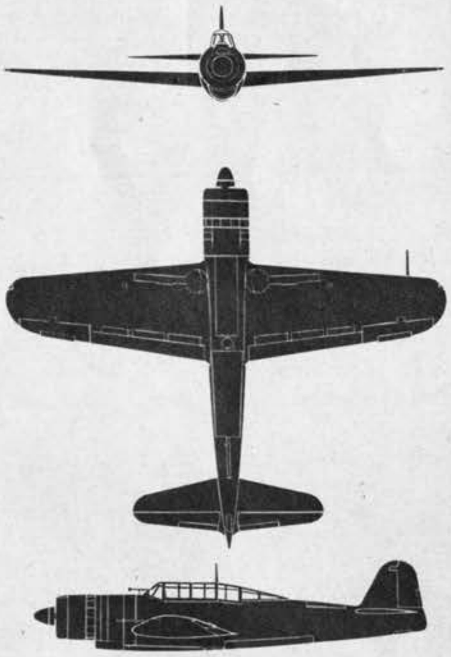
JAPANESE NAVY'S POWERFUL NEW FIGHTER



PEGGY

SPAN 73 FT. 10 IN. LENGTH 61 FT. 4 IN.

PEGGY IS A FORMIDABLE NEW JAP BOMBER



JUDY 33

SPAN 37 FT. 10 IN. LENGTH 33 FT. 6 IN.

JAP NAVY BOMBER WITH A RADIAL ENGINE

George and Peggy silhouettes (*see pp. 8–9*) show details of two of Japan's newest operational aircraft. A navy plane, George is notable for having a higher wing than those previously seen on Jap single-seat fighters. Peggy is a twin-engine, mid-wing plane with a top speed of 345 m.p.h., bomb load of about 3,500 lb. Also shown is silhouette of the radial-engine Judy pictured in March *Journal*.

[redacted]

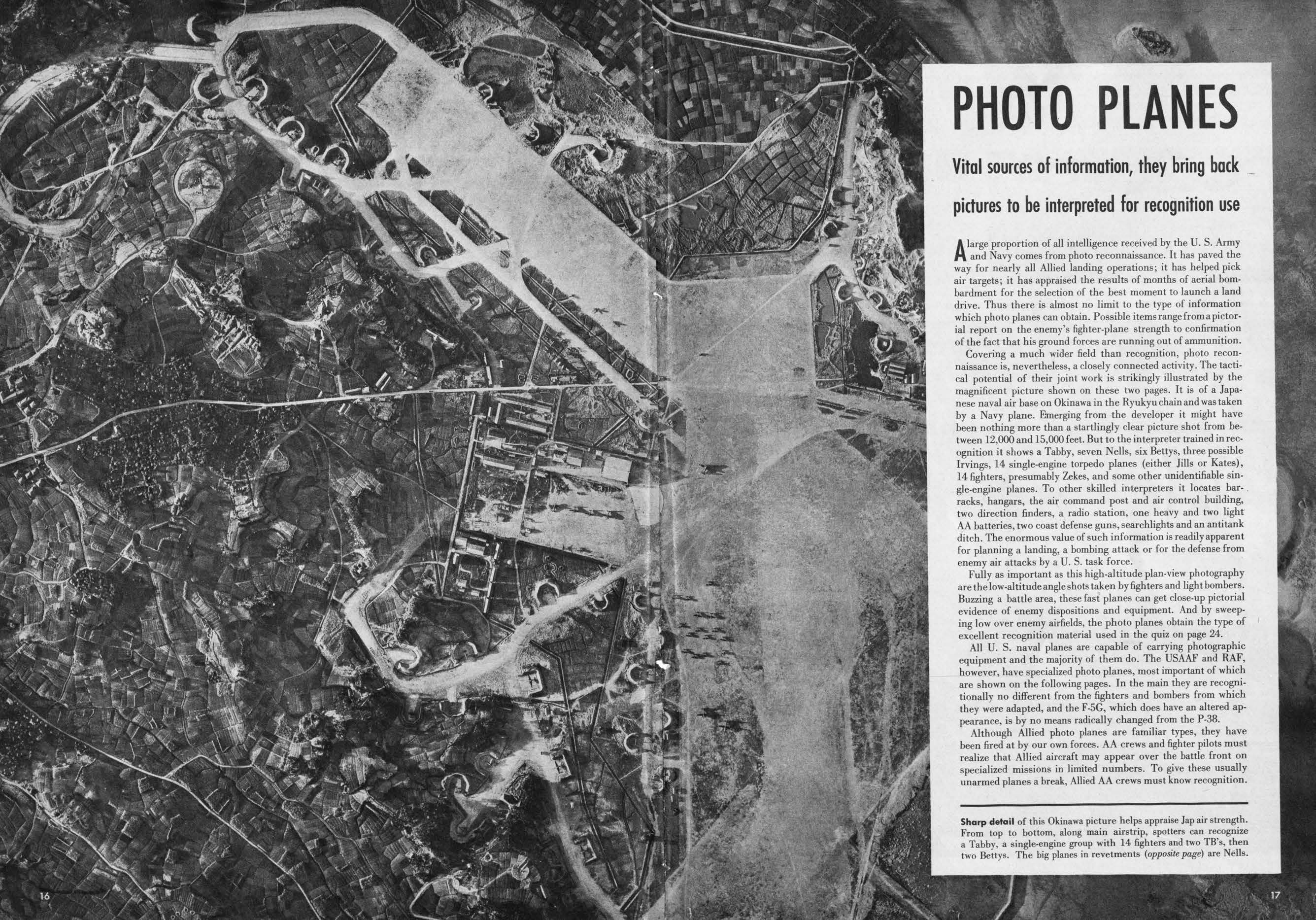


PHOTO PLANES

Vital sources of information, they bring back pictures to be interpreted for recognition use

A large proportion of all intelligence received by the U. S. Army and Navy comes from photo reconnaissance. It has paved the way for nearly all Allied landing operations; it has helped pick air targets; it has appraised the results of months of aerial bombardment for the selection of the best moment to launch a land drive. Thus there is almost no limit to the type of information which photo planes can obtain. Possible items range from a pictorial report on the enemy's fighter-plane strength to confirmation of the fact that his ground forces are running out of ammunition.

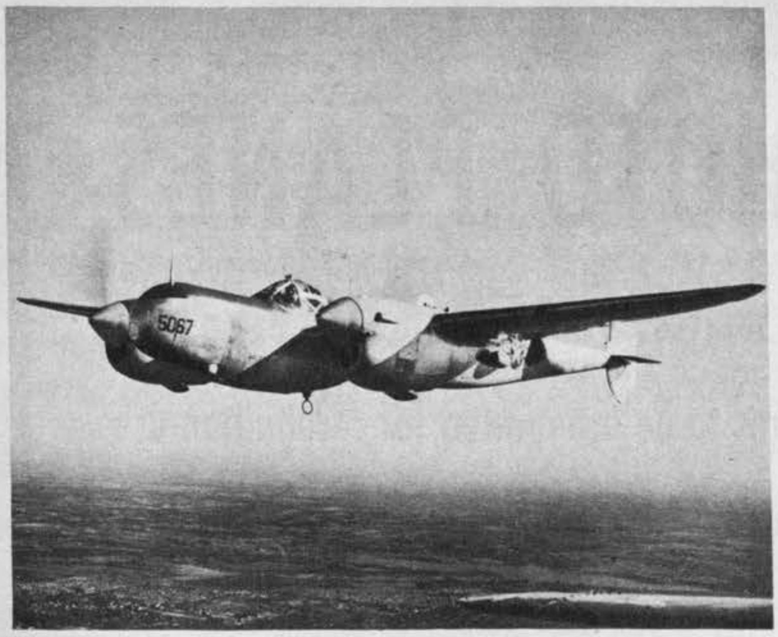
Covering a much wider field than recognition, photo reconnaissance is, nevertheless, a closely connected activity. The tactical potential of their joint work is strikingly illustrated by the magnificent picture shown on these two pages. It is of a Japanese naval air base on Okinawa in the Ryukyu chain and was taken by a Navy plane. Emerging from the developer it might have been nothing more than a startlingly clear picture shot from between 12,000 and 15,000 feet. But to the interpreter trained in recognition it shows a Tabby, seven Nells, six Bettys, three possible Irvings, 14 single-engine torpedo planes (either Jills or Kates), 14 fighters, presumably Zekes, and some other unidentifiable single-engine planes. To other skilled interpreters it locates barracks, hangars, the air command post and air control building, two direction finders, a radio station, one heavy and two light AA batteries, two coast defense guns, searchlights and an antitank ditch. The enormous value of such information is readily apparent for planning a landing, a bombing attack or for the defense from enemy air attacks by a U. S. task force.

Fully as important as this high-altitude plan-view photography are the low-altitude angle shots taken by fighters and light bombers. Buzzing a battle area, these fast planes can get close-up pictorial evidence of enemy dispositions and equipment. And by sweeping low over enemy airfields, the photo planes obtain the type of excellent recognition material used in the quiz on page 24.

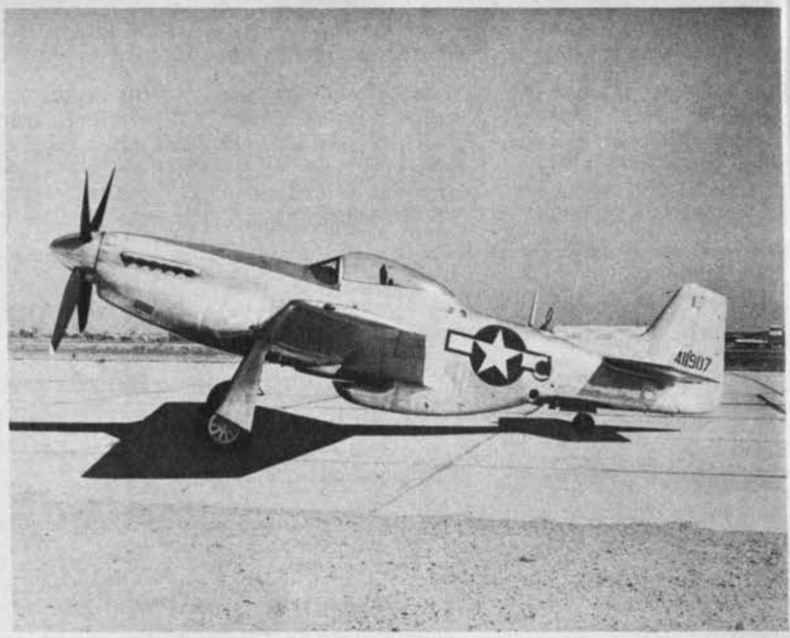
All U. S. naval planes are capable of carrying photographic equipment and the majority of them do. The USAAF and RAF, however, have specialized photo planes, most important of which are shown on the following pages. In the main they are recognitionally no different from the fighters and bombers from which they were adapted, and the F-5G, which does have an altered appearance, is by no means radically changed from the P-38.

Although Allied photo planes are familiar types, they have been fired at by our own forces. AA crews and fighter pilots must realize that Allied aircraft may appear over the battle front on specialized missions in limited numbers. To give these usually unarmed planes a break, Allied AA crews must know recognition.

Sharp detail of this Okinawa picture helps appraise Jap air strength. From top to bottom, along main airstrip, spotters can recognize a Tabby, a single-engine group with 14 fighters and two TB's, then two Bettys. The big planes in revetments (*opposite page*) are Nells.



Bulging nose on a longer gondola marks the F-5G from P-38's older photo version, F-5. It may become AAF's top strategic photo plane.



P-51 development, F-6K has three camera ports. Note two near insignia. It will be vital in tactical reconnaissance, ground support.

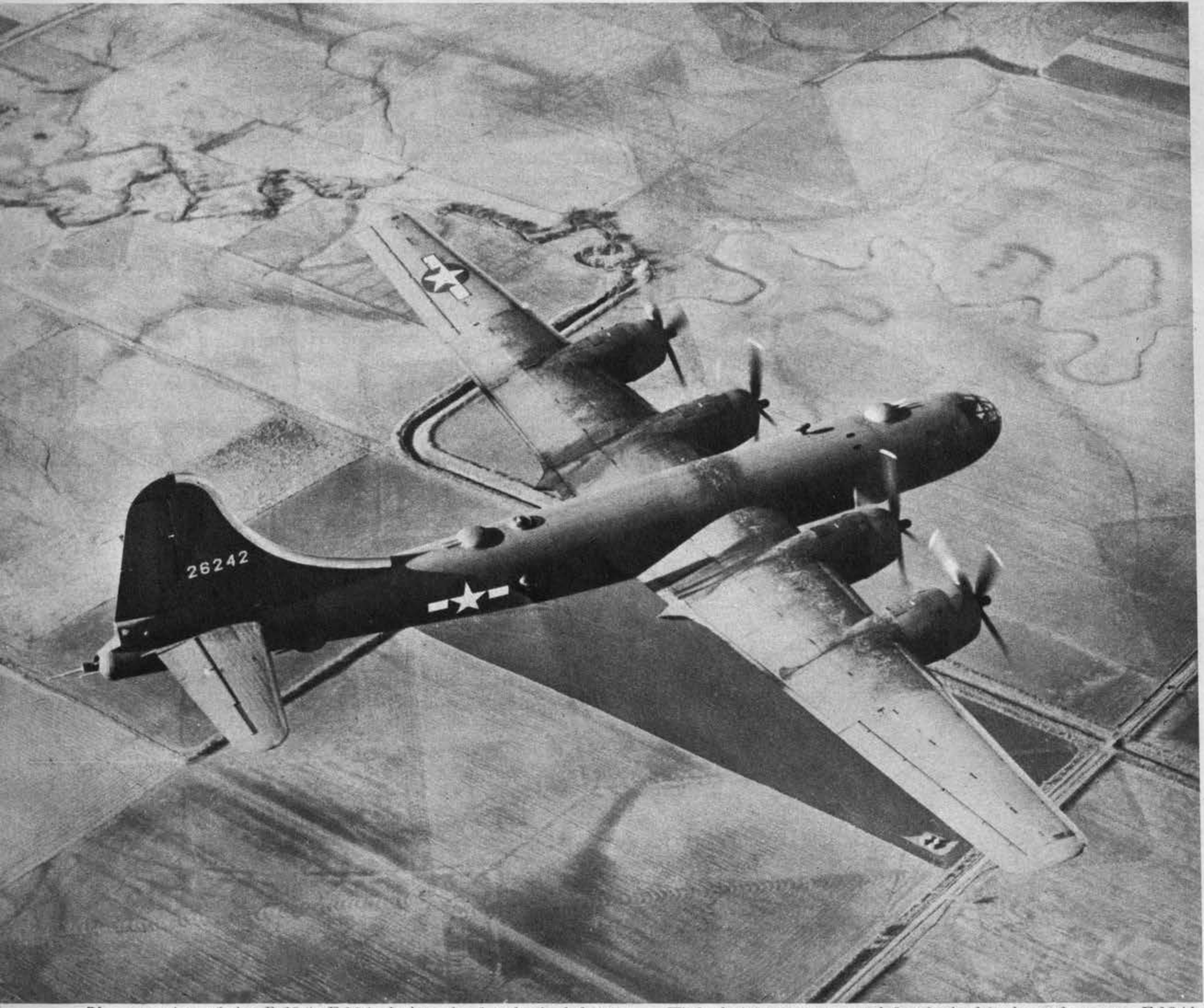
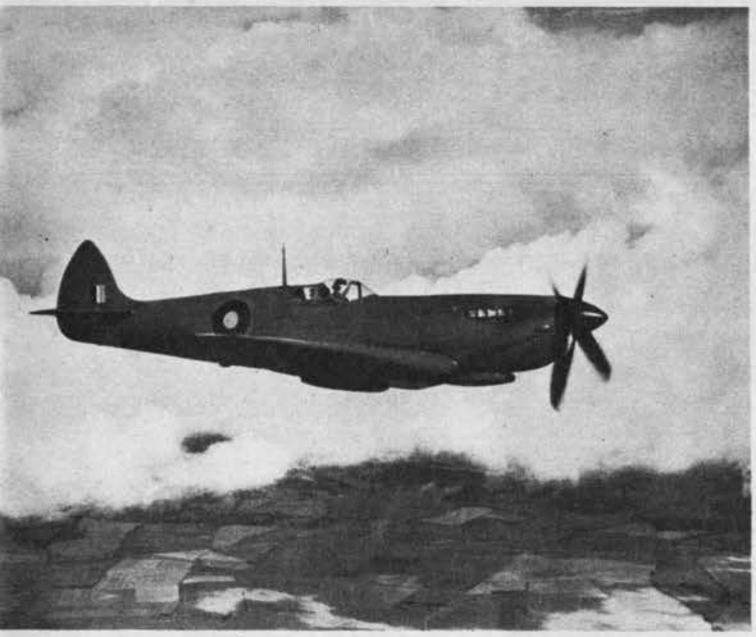
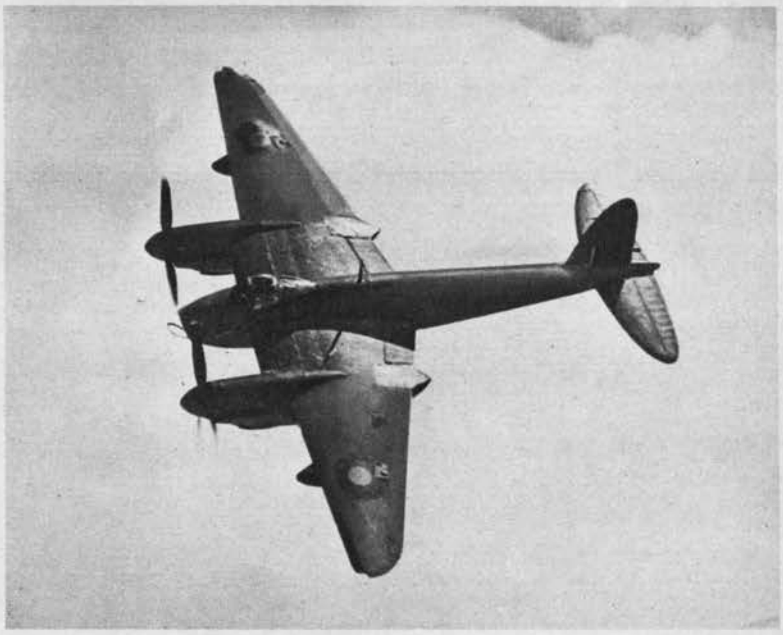


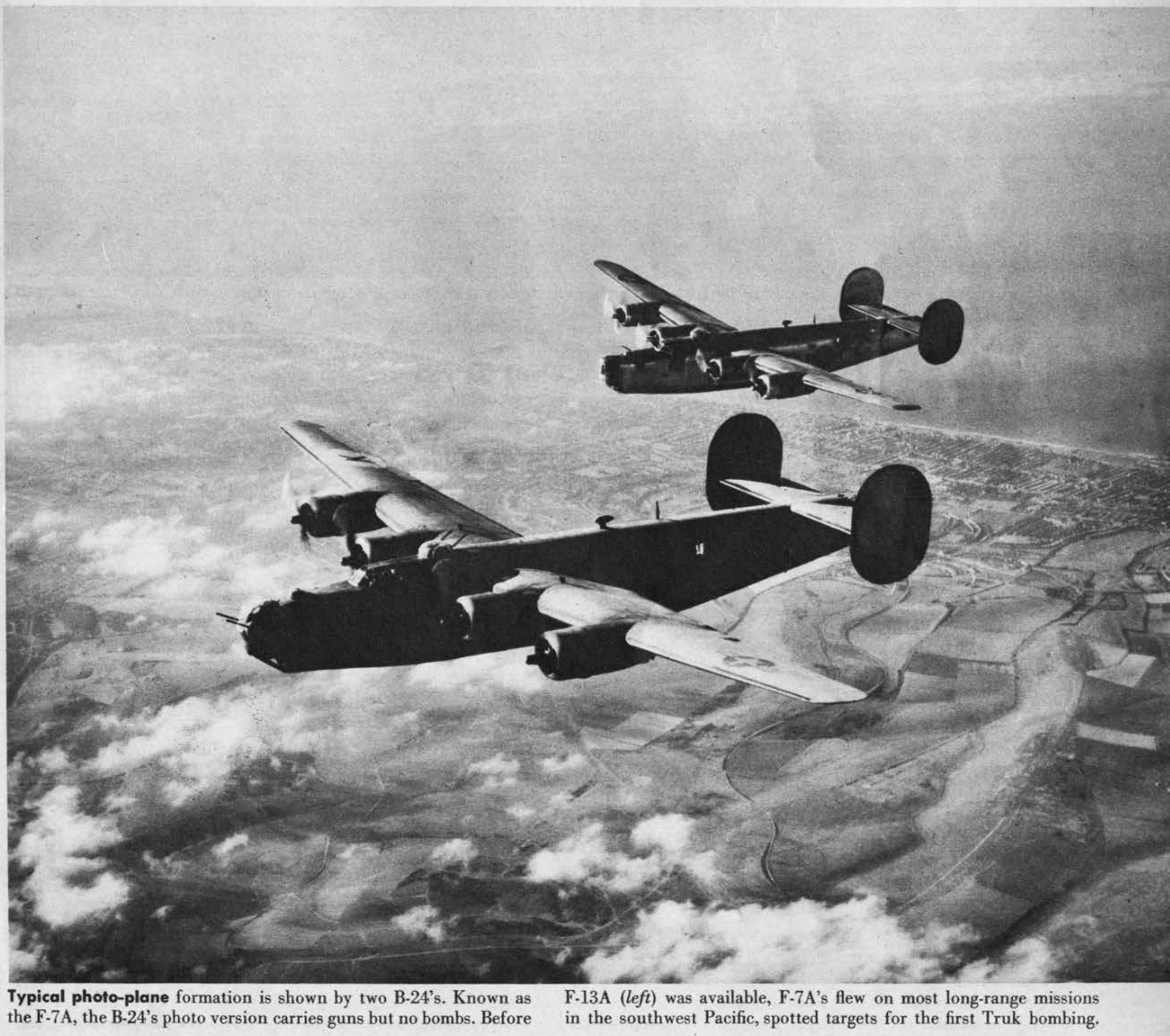
Photo version of the B-29 is F-13A. It has the bomber's defensive firepower and most complete camera equipment yet used in a plane. With their great range and fine high-altitude performance, F-13A's have done a magnificent reconnaissance and mapping job over Japan.



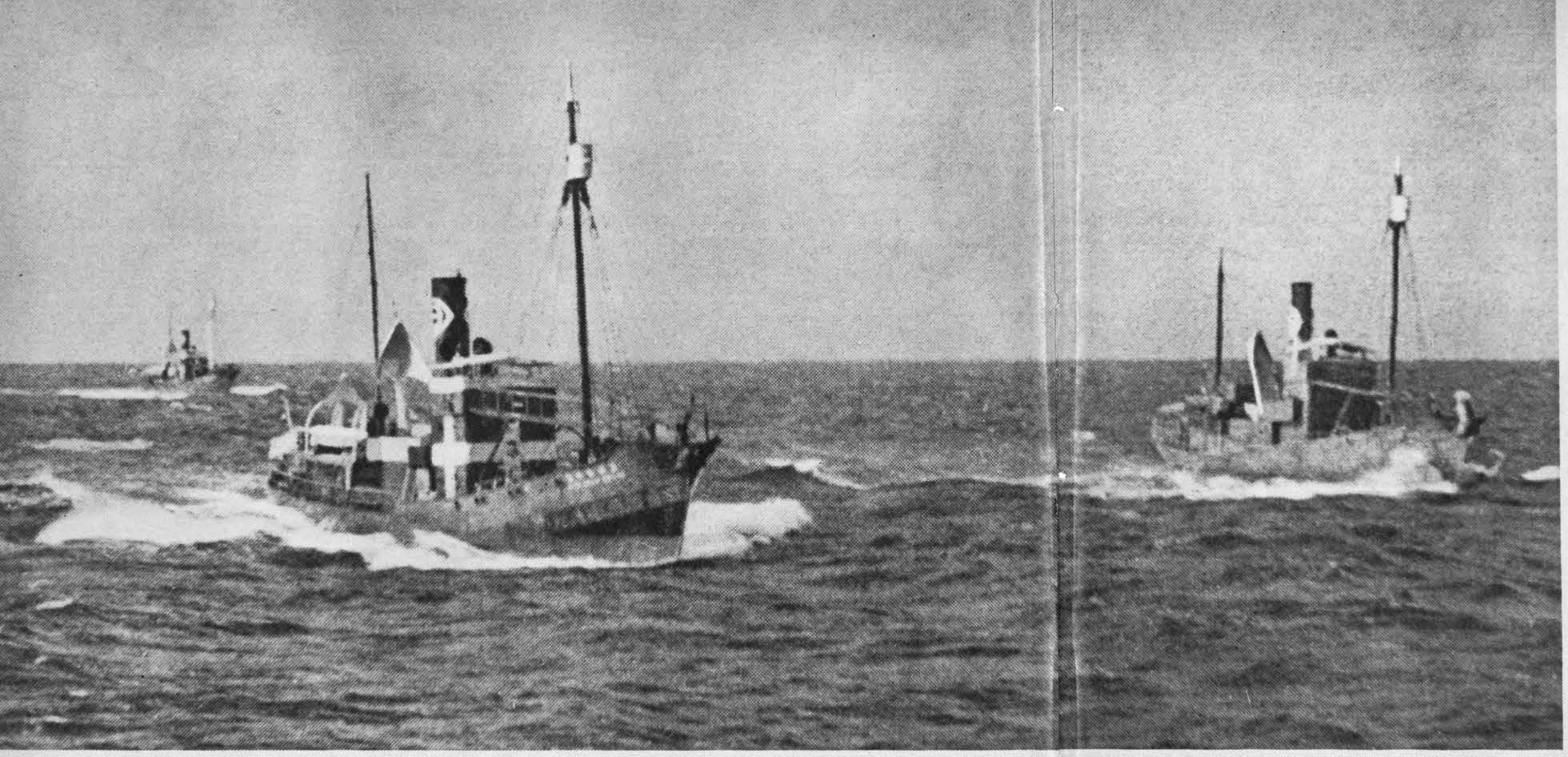
Spitfire XI, powered by 1,650-hp. Merlin engine, can make round trip from England to Berlin. Its cameras are fitted in the fuselage.



Mosquito XVI equipped with pressure cabin serves as an RAF night bomber and Coastal Command photo plane. It carries no armament.



Typical photo-plane formation is shown by two B-24's. Known as the F-7A, the B-24's photo version carries guns but no bombs. Before F-13A (*left*) was available, F-7A's flew on most long-range missions in the southwest Pacific, spotted targets for the first Truk bombing.



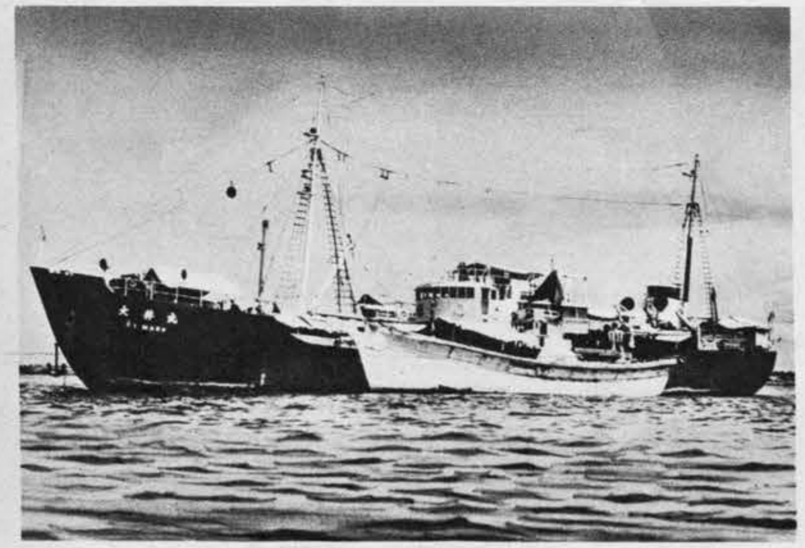
HEAVILY ARMED WHALE KILLERS FORM A PART OF JAPAN'S ENORMOUS FISHING FLEET. CARRYING DEPTH CHARGES AND A 3-IN. GUN, THEY HAVE PROVED TO BE SUCCESSFUL BOTH AS MINESWEEPERS AND AS SUBCHASERS

FISHING BOATS REINFORCE JAPS

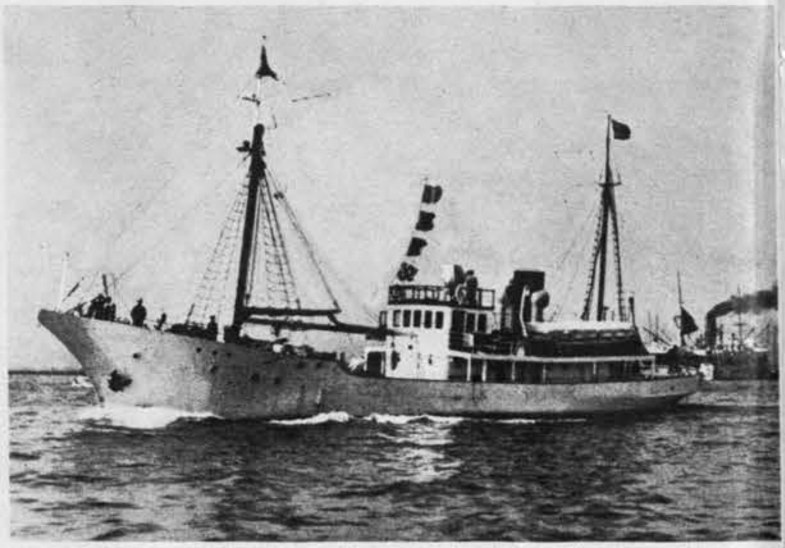
Supplementing Japan's navy and merchant shipping is a vast fleet of about 300,000 fishing vessels. Of these some 50,000 are steam, gasoline or diesel powered, furnishing the Jap navy with a huge pool from which to draw picket boats, provision ships, minesweepers, etc. Too small and heterogeneous for classification under JMST, these ships can nevertheless be recognized and reported by alert ship lookouts and airmen.

Ranging in size from less than 100 to 1,000 gross tons, the fishing vessels are classified as deep-sea trawlers, coastal trawlers, whale killers and small fishing boats. Among deep-sea trawlers a further breakdown has been made to distinguish modern large diesel-powered ships (1,000 GT), small diesels (300 GT) and old-type stream trawlers (200–300 GT).

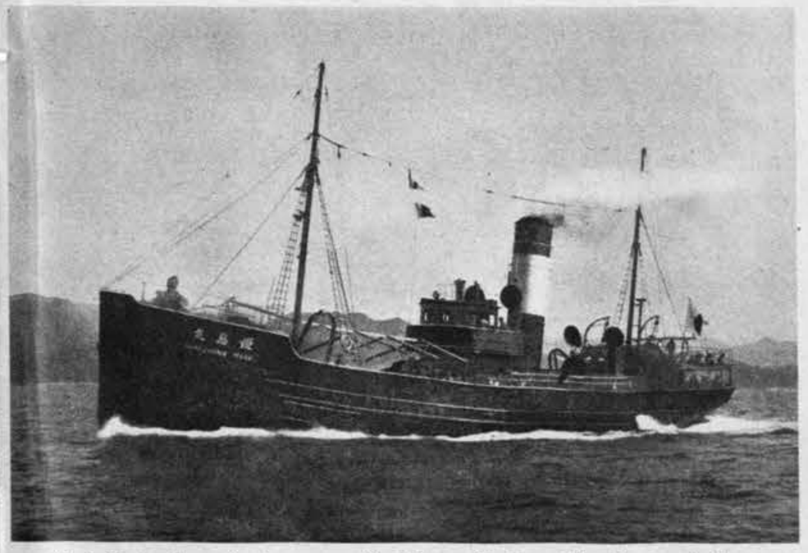
Units of the fishing fleet do not always abandon their regular pursuit when on naval duty. Equipped with depth charges, guns, and radio and sonic equipment, they serve as formidable patrol units. It was probably one of these vessels which stumbled on the task force carrying Doolittle's B-25's, forcing them to take off 400 miles farther out than planned. Typical units of Japan's fishing fleet are shown on these and the following pages.



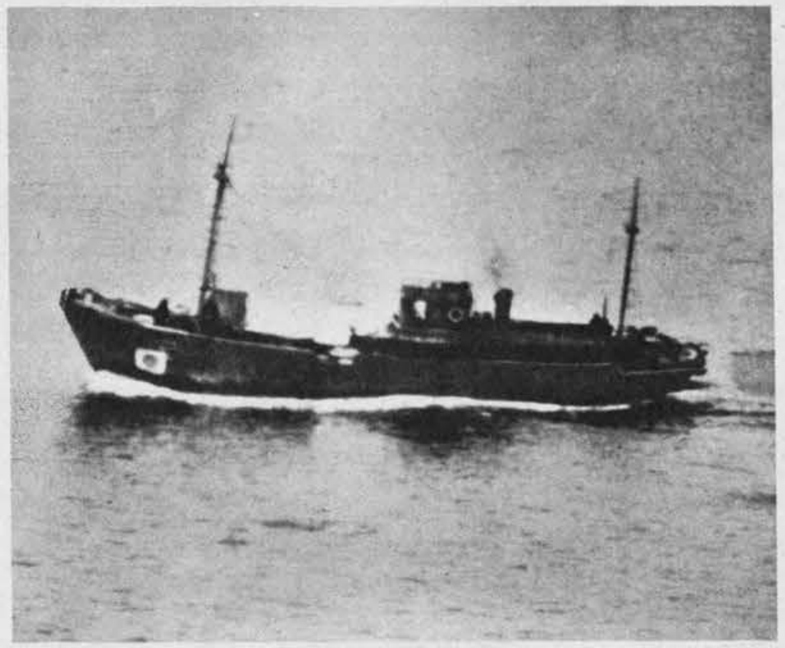
Large diesel trawler has a stubby stack aft, superstructure extending from bridge to mainmast. Note high sheer bow and deep well forward.



Small trawler has prominent clipper bow, low stack abaft the blocky bridge. Length is about 125 ft.; gross tonnage approximately 300.

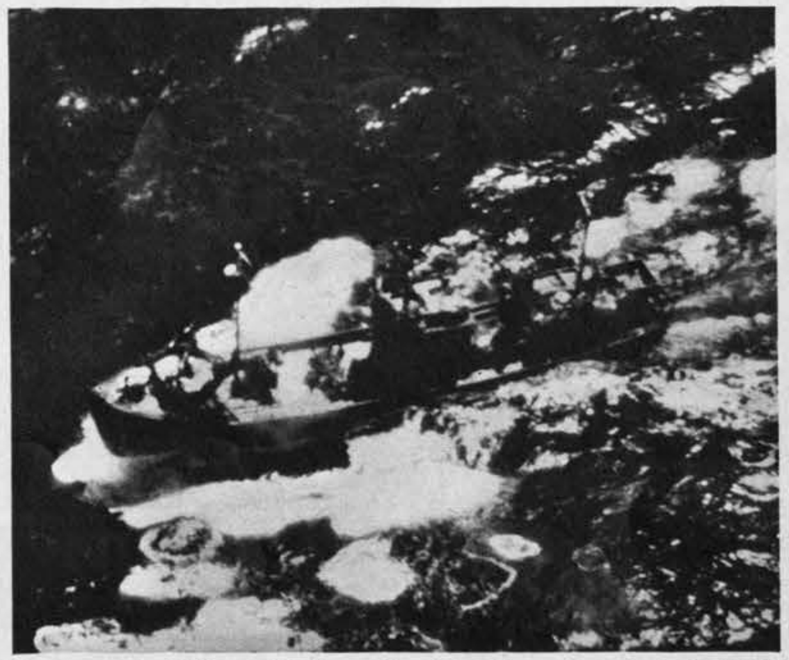


A tall stack and sharp vertical bow distinguish the typical steam trawler. Stack and bridge near amidships give a center-island effect.

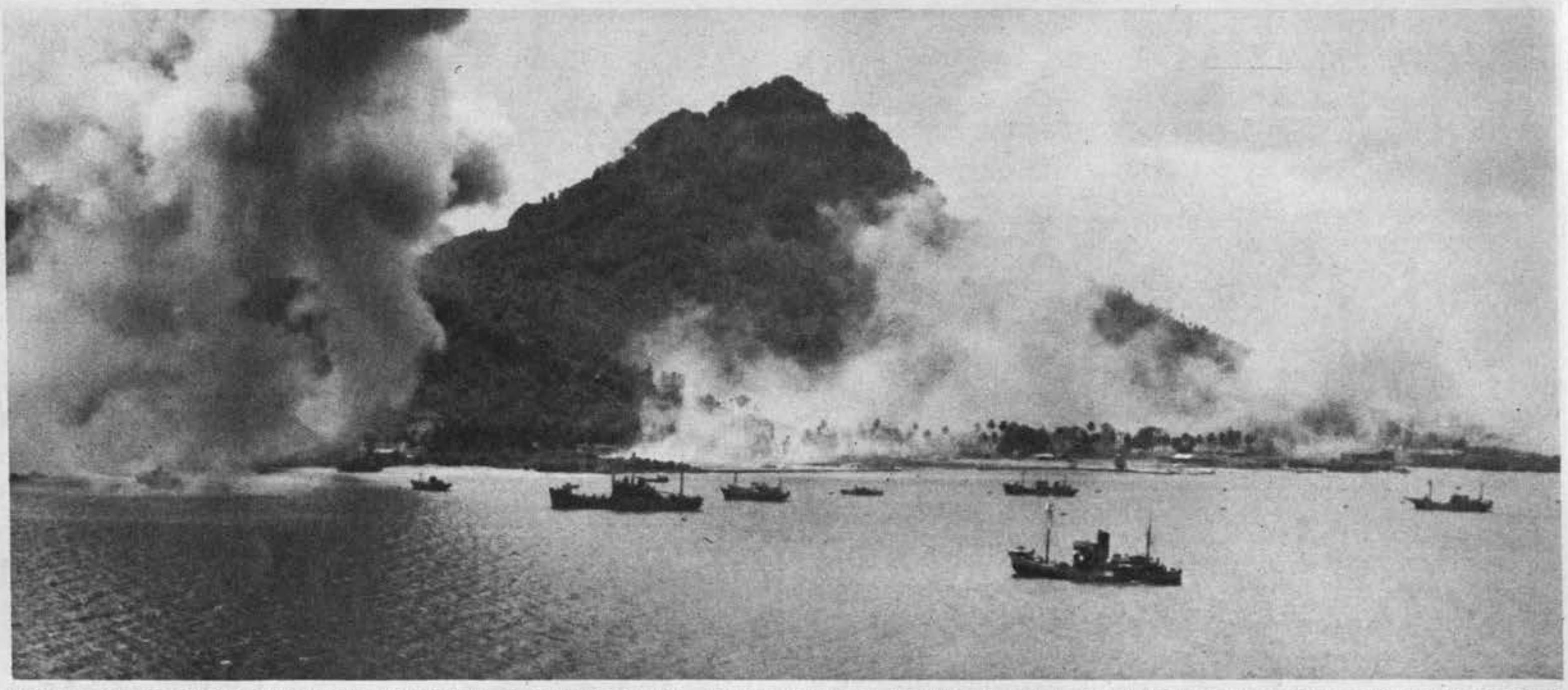


Straight sheer bow, small, thin stack mark a second type of diesel trawler. Jap insignia near the bow indicates that ship is on naval duty.

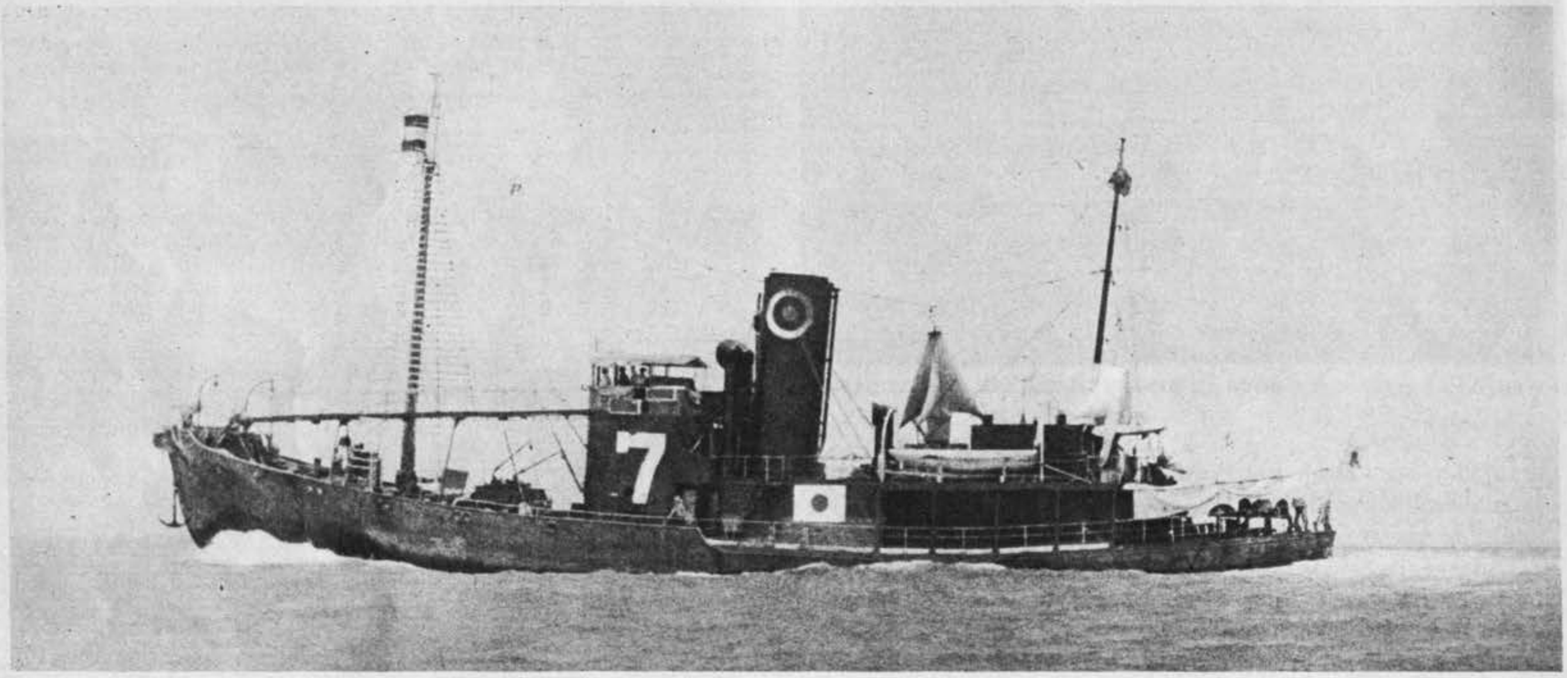
A hail of bullets surrounds this trawler near Jaluit. The gross tonnage of these craft varies from 100 to 300; maximum length is 150 ft.



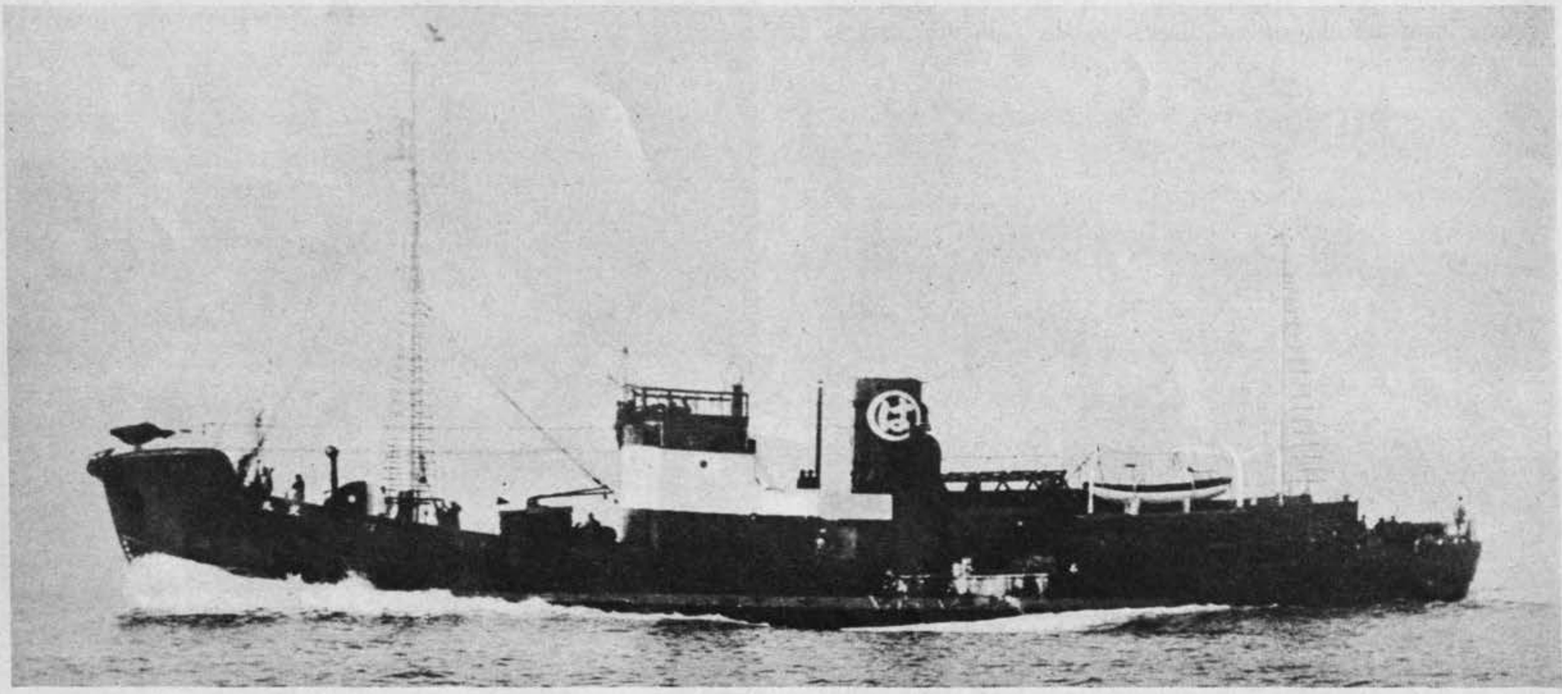
Deck gun is visible on this large diesel trawler under attack by U. S. plane. This type is a good patrol craft. Note the boxlike bridge island.



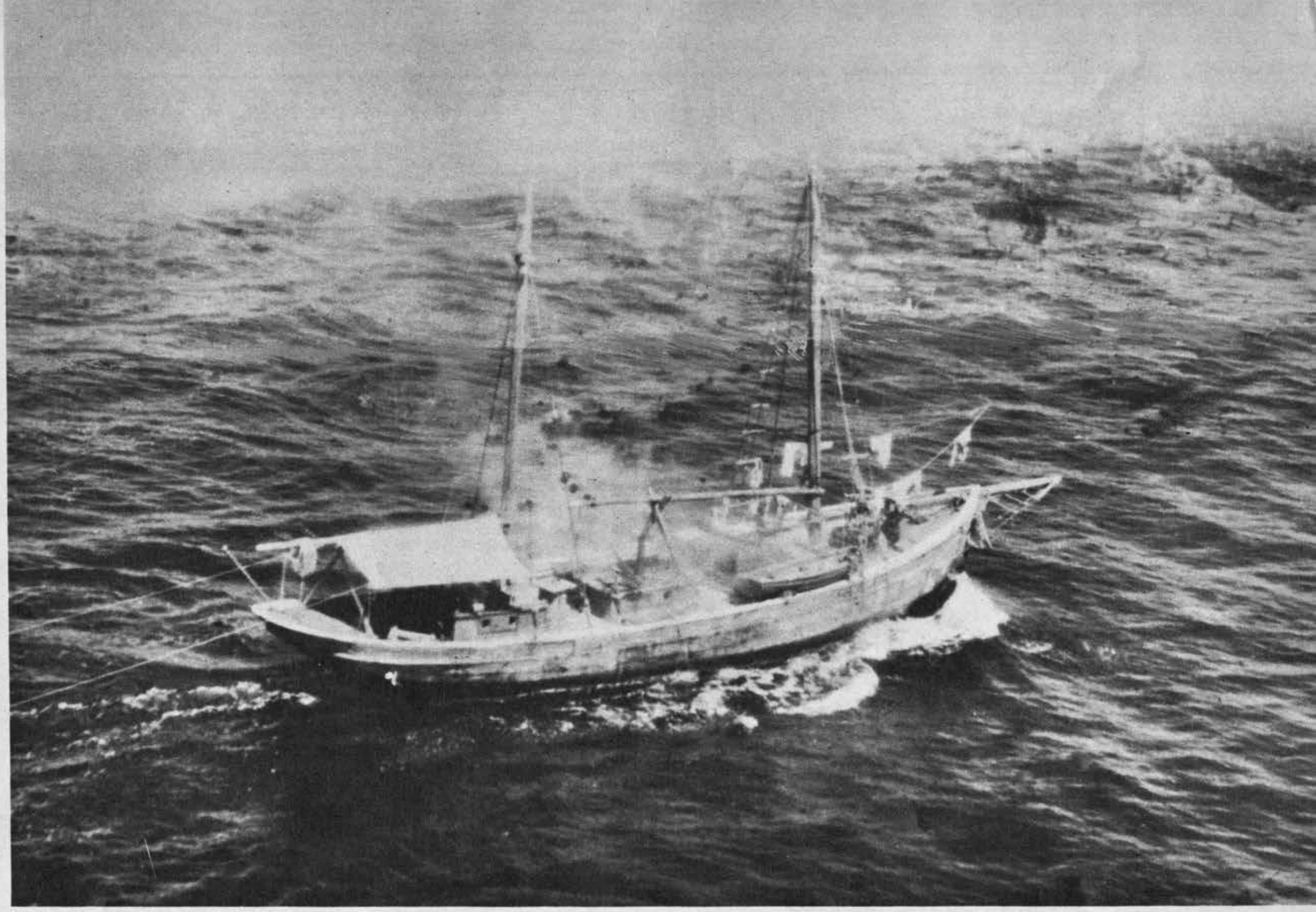
JAP SHIP GROUP HERE INCLUDES WHALE KILLER (FOREGROUND), A FOX TARE DOG (LEFT CENTER), TWO COASTAL TRAWLERS (RIGHT BACKGROUND)



TALL STACK DIRECTLY BEHIND BRIDGE, TWO MASTS, LOW FREEBOARD AND HIGH SHEER BOW HELP IDENTIFY THE OLDER TYPE OF WHALE KILLER

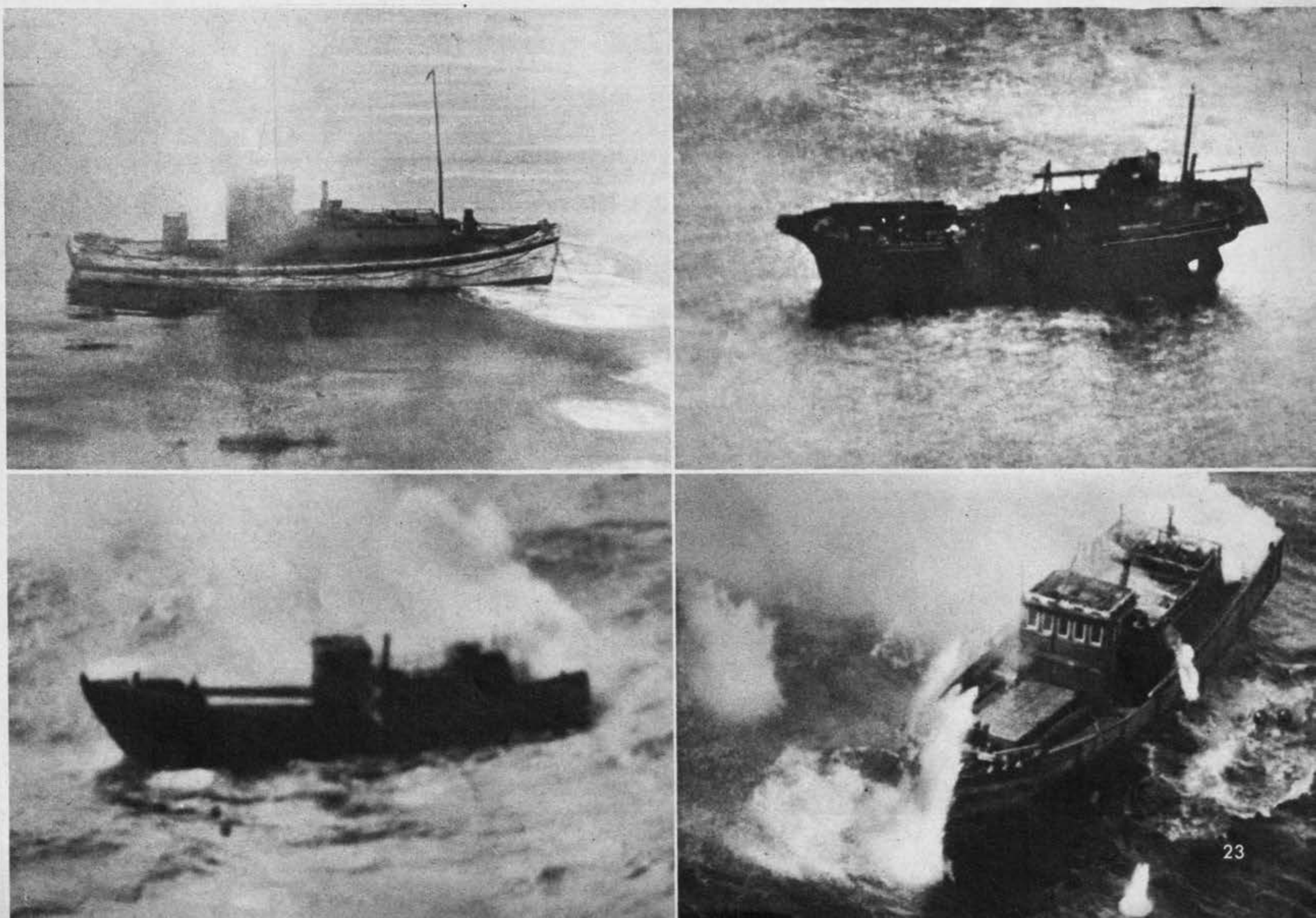


THE NEWER WHALE KILLERS HAVE LOWER STACKS WHICH ARE CLEANLY SEPARATED FROM BRIDGE, PRESENTING A GENERALLY LOWER SILHOUETTE

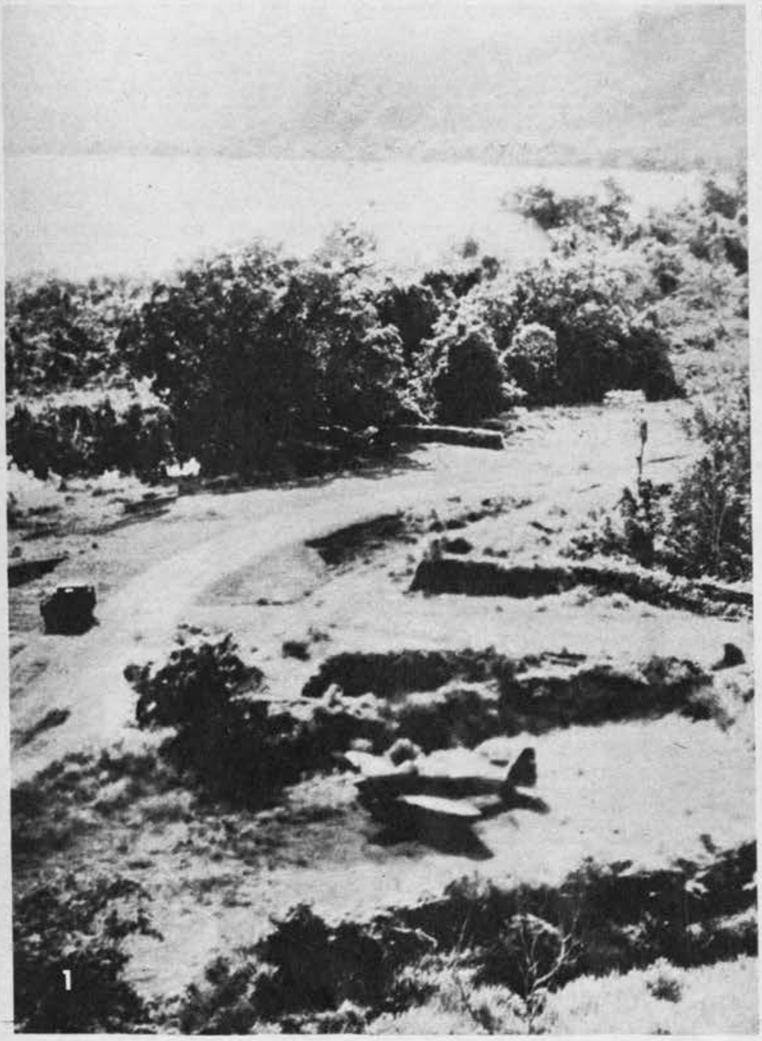


THIS SMALL JAPANESE COASTAL TRAWLER HAS TWO TALL MASTS, LITTLE SUPERSTRUCTURE. IT MAY BE USED AS A PICKET BOAT OR A SUBCHASER

SMALL FISHING BOATS VARY CONSIDERABLY, SOME BEING IDENTICAL TO CARGO LUGGERS. RADIO-EQUIPPED, THEY OFTEN SERVE AS PICKET BOATS



QUIZ NO. 2: TARGETS FOR STRAFERS



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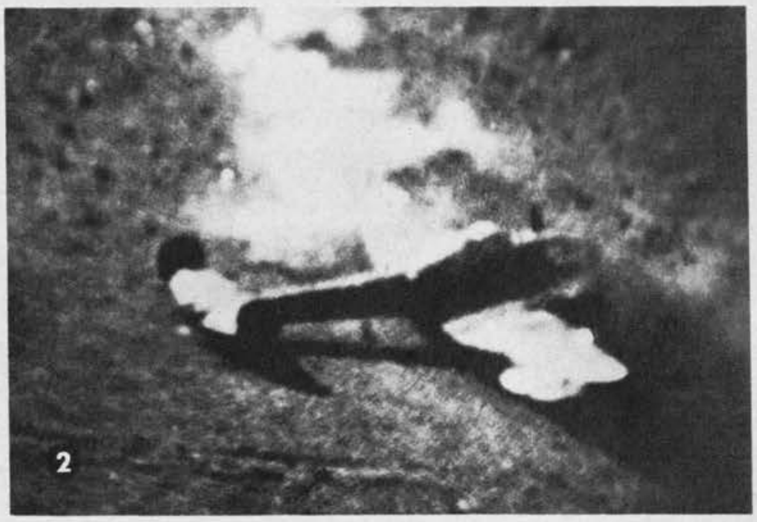

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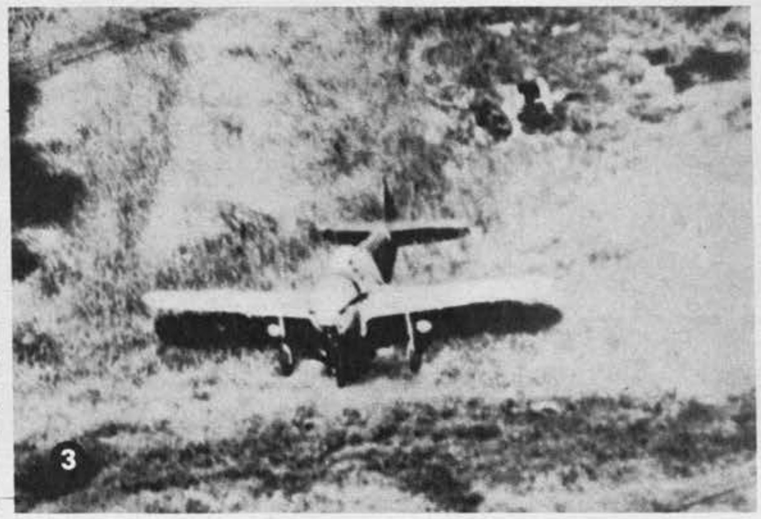

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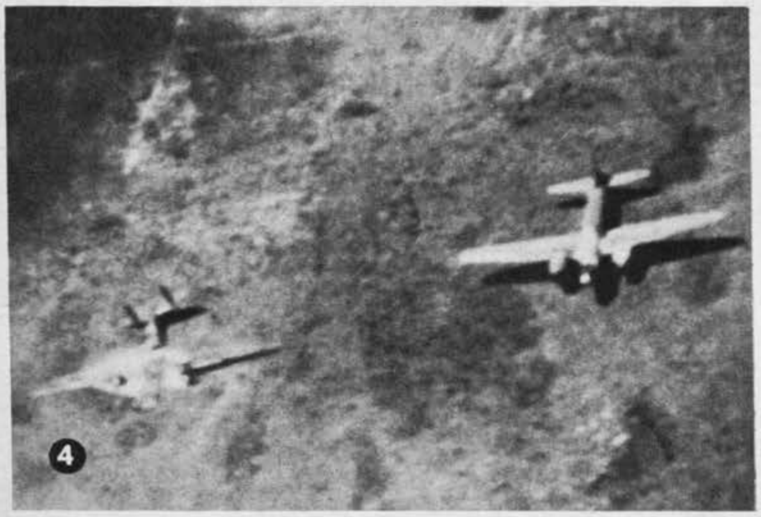

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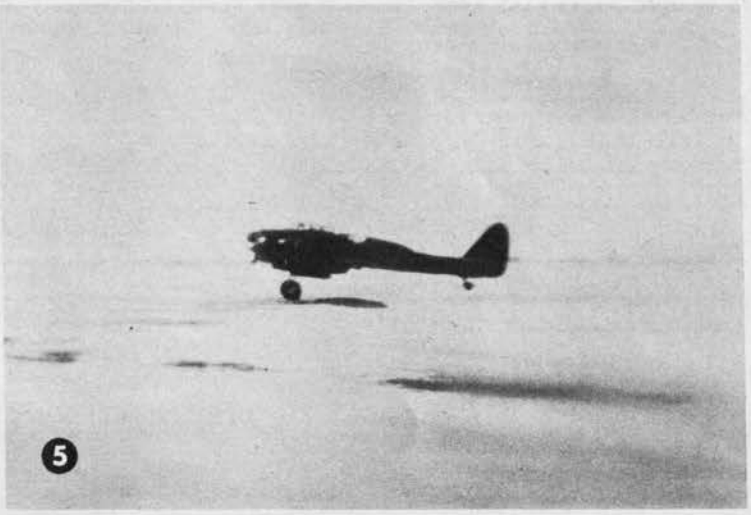

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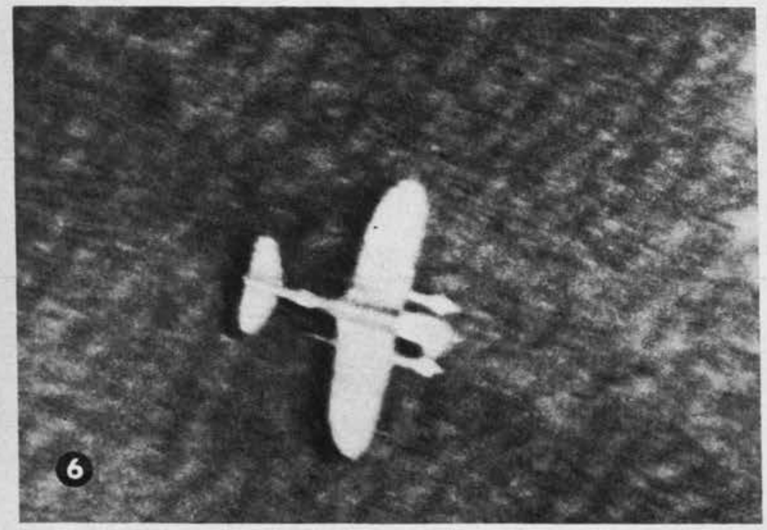

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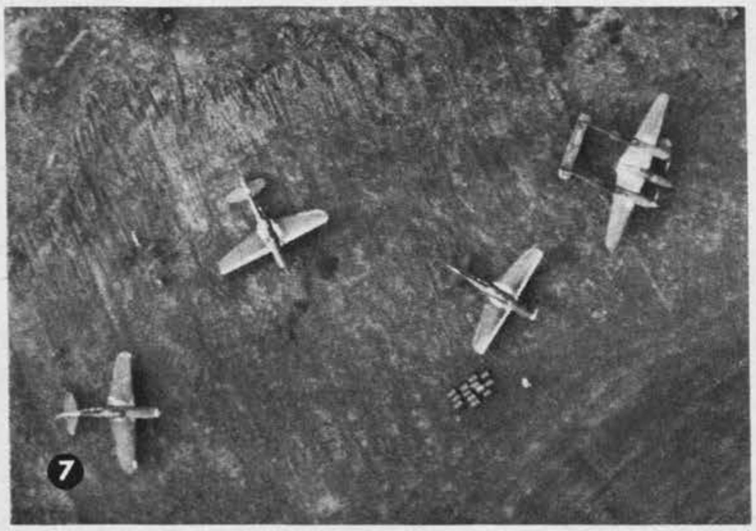

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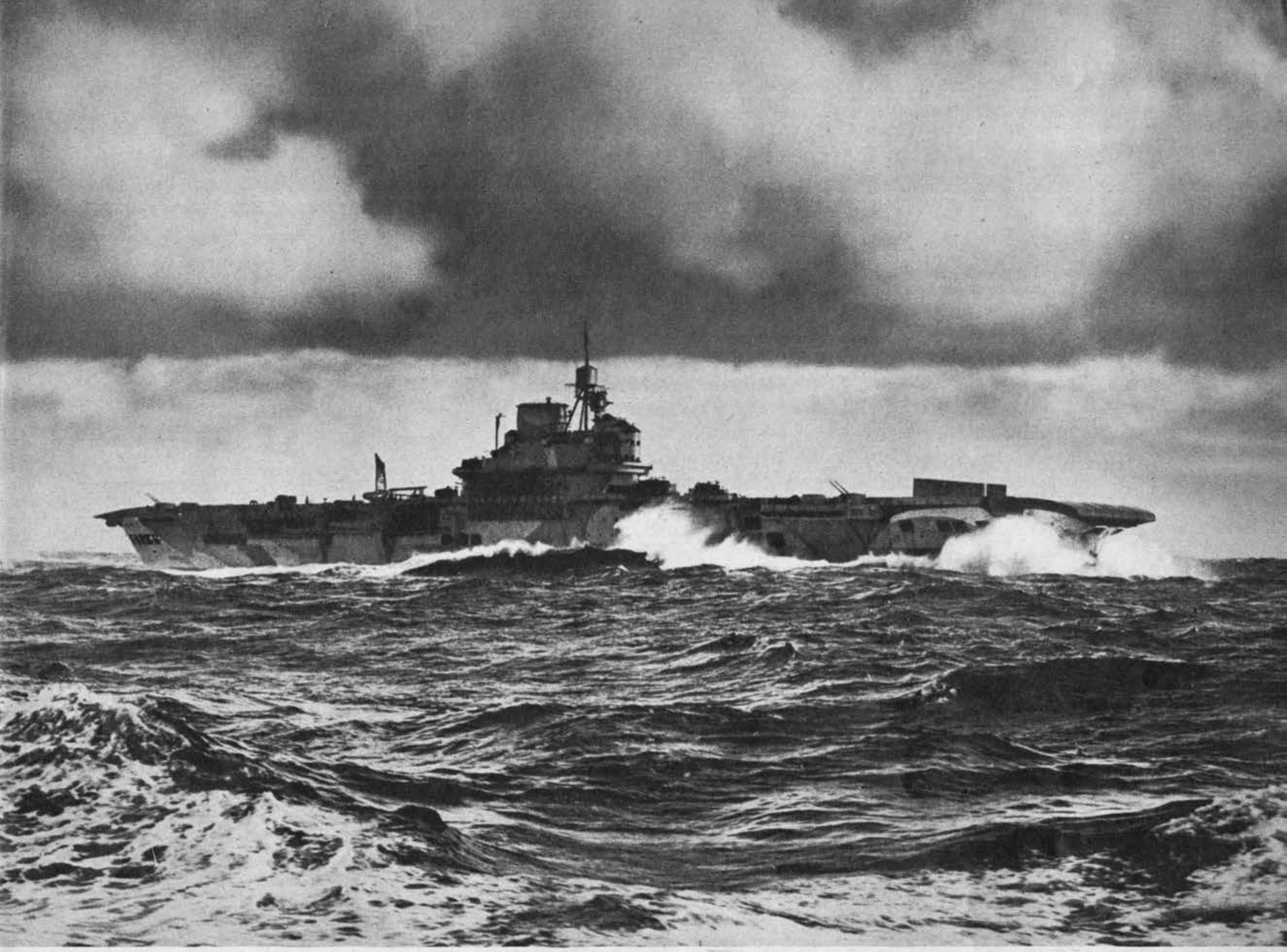
For answers see p. 48



RAISING BURSTS OF FOAM UNDER THE CURVED OVERHANG OF HER BOW, BRITAIN'S BIG CARRIER VICTORIOUS PLOWS THROUGH HEAVY SEAS

BRITISH SHIPS

VETERAN FLEET PROTECTS A WORLD-WIDE COMMONWEALTH

Global in the scope of their operations, warships of the British Commonwealth are a recognition problem of major importance in all oceans. Traditionally, British seapower has been a bulwark of the British Commonwealth of Nations as well as the home islands. Units of the fleet may be based in remote ports in the Empire, while a number of ships are assigned to the Dominion navies of Australia, New Zealand and Canada. With the shape of the war changing on all fronts, British Commonwealth warships may be encountered much more frequently by our forces. A careful review is thus both timely and imperative.

Britain's fleet has been shaped to defend a world-wide network of ocean supply routes which feed the home population and economy and maintain communications with the scattered Empire. Great numbers of ships are needed to hold this extended system of naval defenses and much of Britain's seapower is found in droves of patrol and escort craft. To gain numbers in heavier categories, Britain has invested her naval resources and treaty tonnage quotas in units moderate in displacement and firepower. This trend is shown in the emphasis on six-inch gun cruisers almost to the exclusion of the eight-inch type in recent years.

Need for numbers also influences Britain's naval architecture. Pressure on shipyards demands that ships be durable and easy to build or repair. Most British warships, therefore, are severely simple in design, with many right angles and flat surfaces. This results in a blocky appearance, especially about the bridge, a distinct national characteristic for recognition.

During this war, the Royal Navy has been active chiefly on the maritime approaches to Europe, where it was marshaled to protect the home island and contain Axis power on the Continent. Operating in the confined waters of the Channel and Mediterranean, within easy range of Axis airfields and sub bases, the British have suffered severe losses. Repeatedly the fleet has run the gantlet to Murmansk, Malta and the Middle East, has been hampered in maneuvers by the vital convoys under its protection. Handled with smart, realistic seamanship, however, British ships have consistently accomplished the missions assigned them. After five years of hard and steady fighting, they carry a wealth of experience in traditional techniques of naval warfare.

BRITISH NAVAL VESSELS

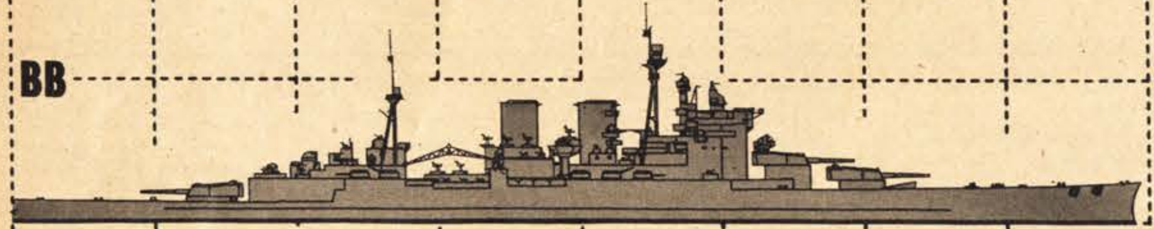
PRINCIPAL COMBATANT TYPES BY CLASSES

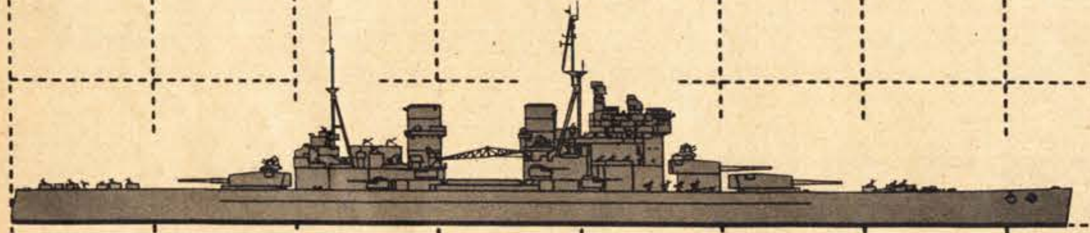
~~RESTRICTED~~

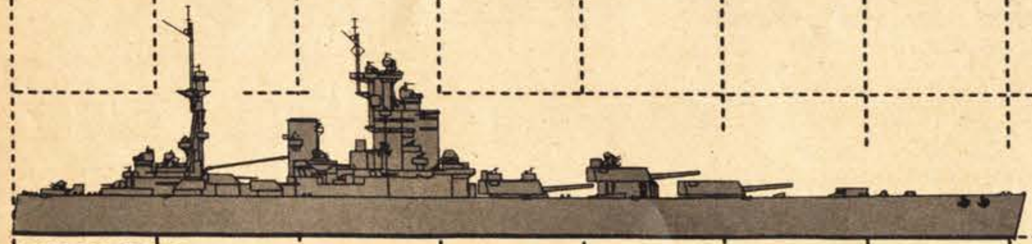
Important warships of the British Commonwealth are summed up by the 19 line drawings on this chart. To simplify the line-up, similar classes are represented by a single drawing. Thus the Implacable Class stands for all British fleet carriers, the Devonshire Class for all "County" CA's, and Southampton Class for Fiji Class (which has upright stacks similar to London) and Belfast as well. Moreover, the Hobart profile also covers the Arethusa Class, while that of the Battler-Smiter Classes does the same for the Archer Class (of the three units in this class only H.M.S. Archer has no island). Destroyers are grouped here under three headings: Tribal Class, similar to "A"-"I" Group (including Wallace, Douglas, Saguenay, Codrington Classes); "J"-"Z" Group; and "V"-"W" Group.

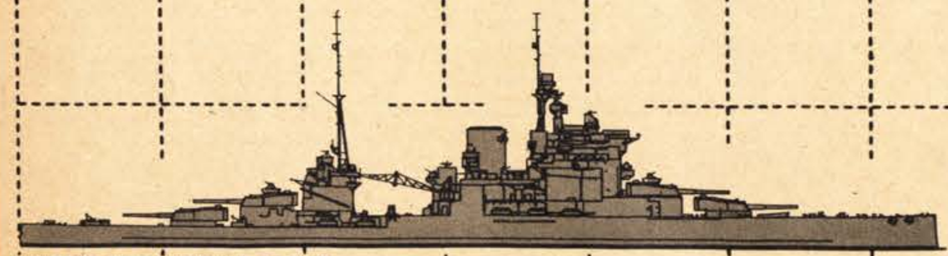
SCALE: EACH SQUARE EQUALS 100 FT.

BB

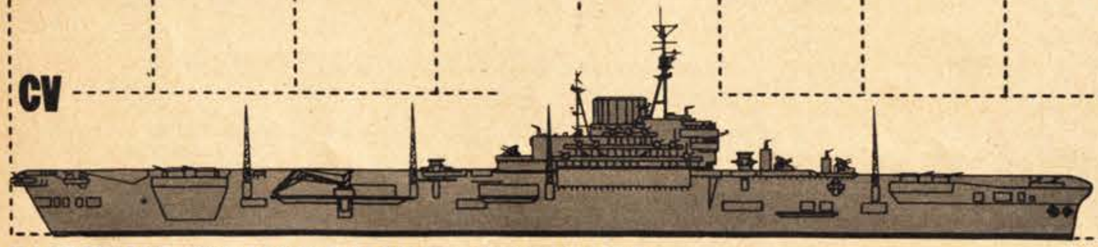

RENOWN


KING GEORGE V CLASS

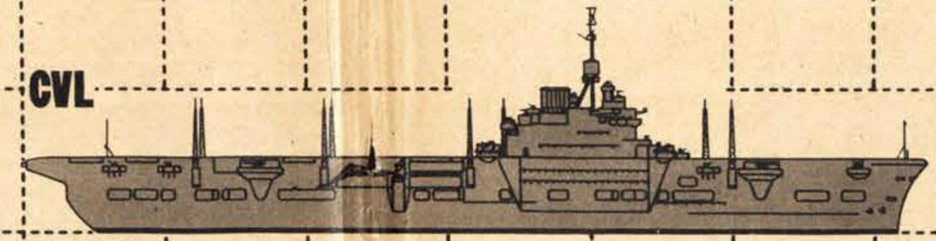

NELSON CLASS


QUEEN ELIZABETH CLASS

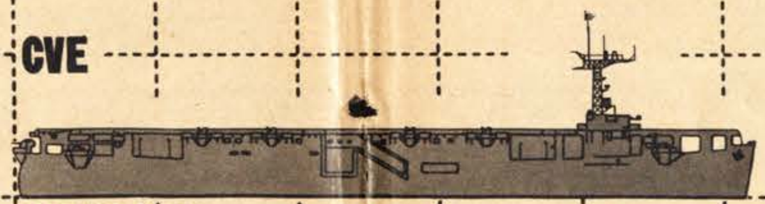
CV

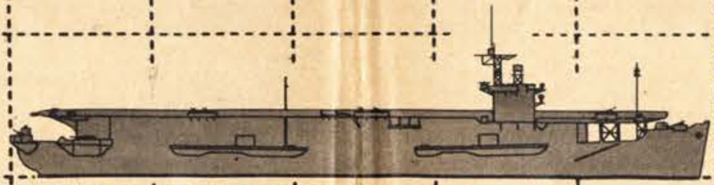

ILLUSTRIOUS-IMPLACABLE CLASSES—INDOMITABLE

CVL

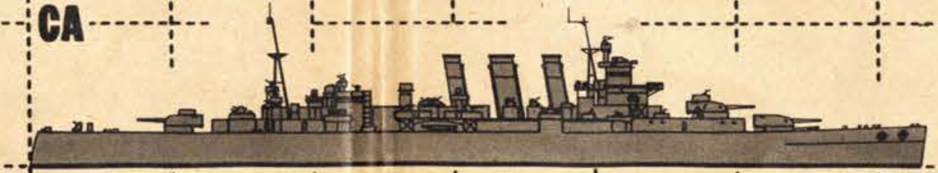

UNICORN

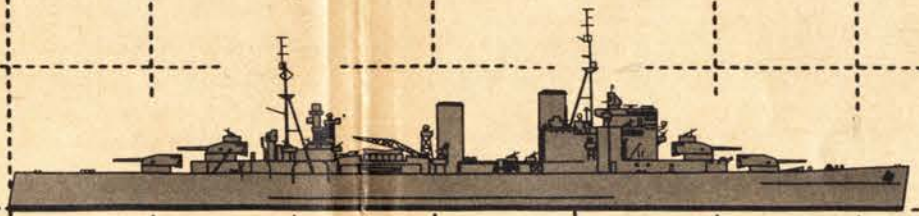
CVE


NAIRANA CLASS

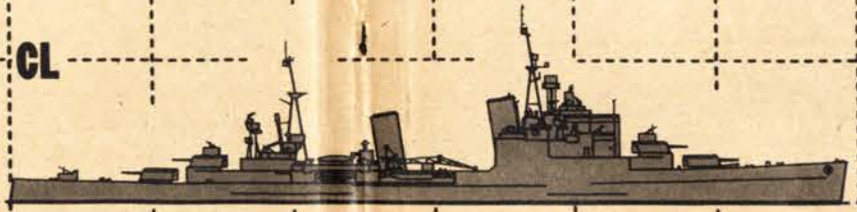

BATTLER-SMITER CLASSES

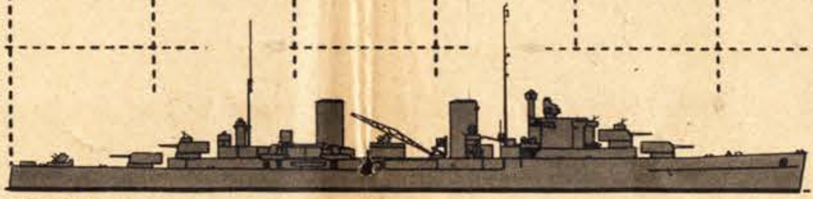
CA

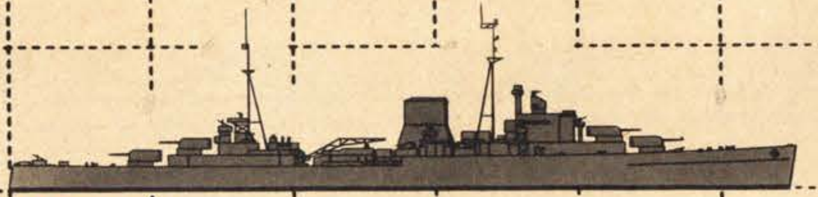

KENT-DEVONSHIRE CLASSES—NORFOLK

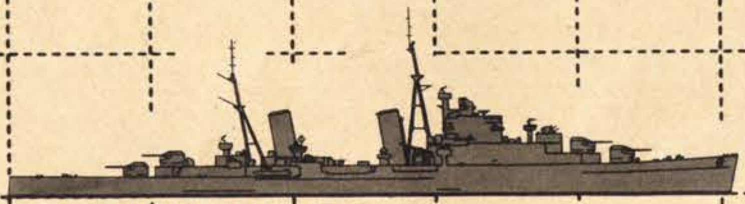

LONDON

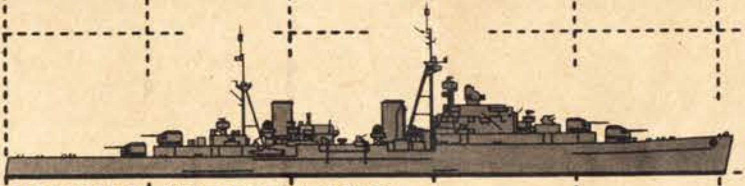
CL

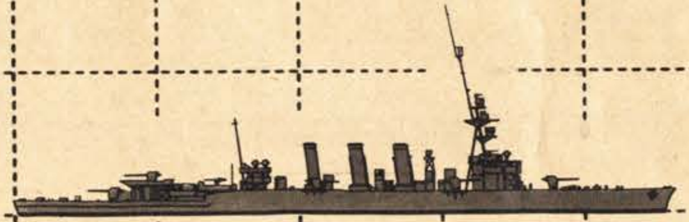

FIJI-SOUTHAMPTON CLASSES


HOBART

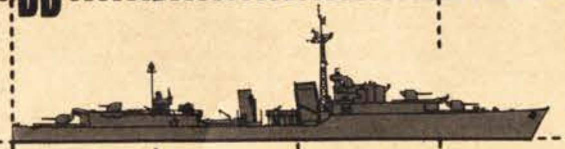

LEANDER CLASS

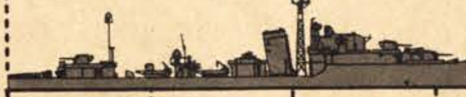

DIDO CLASS (RAKED STACKS)

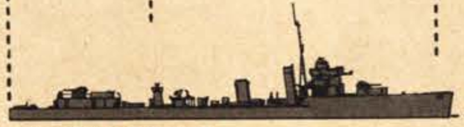

DIDO CLASS (UPRIGHT STACKS)


ADELAIDE

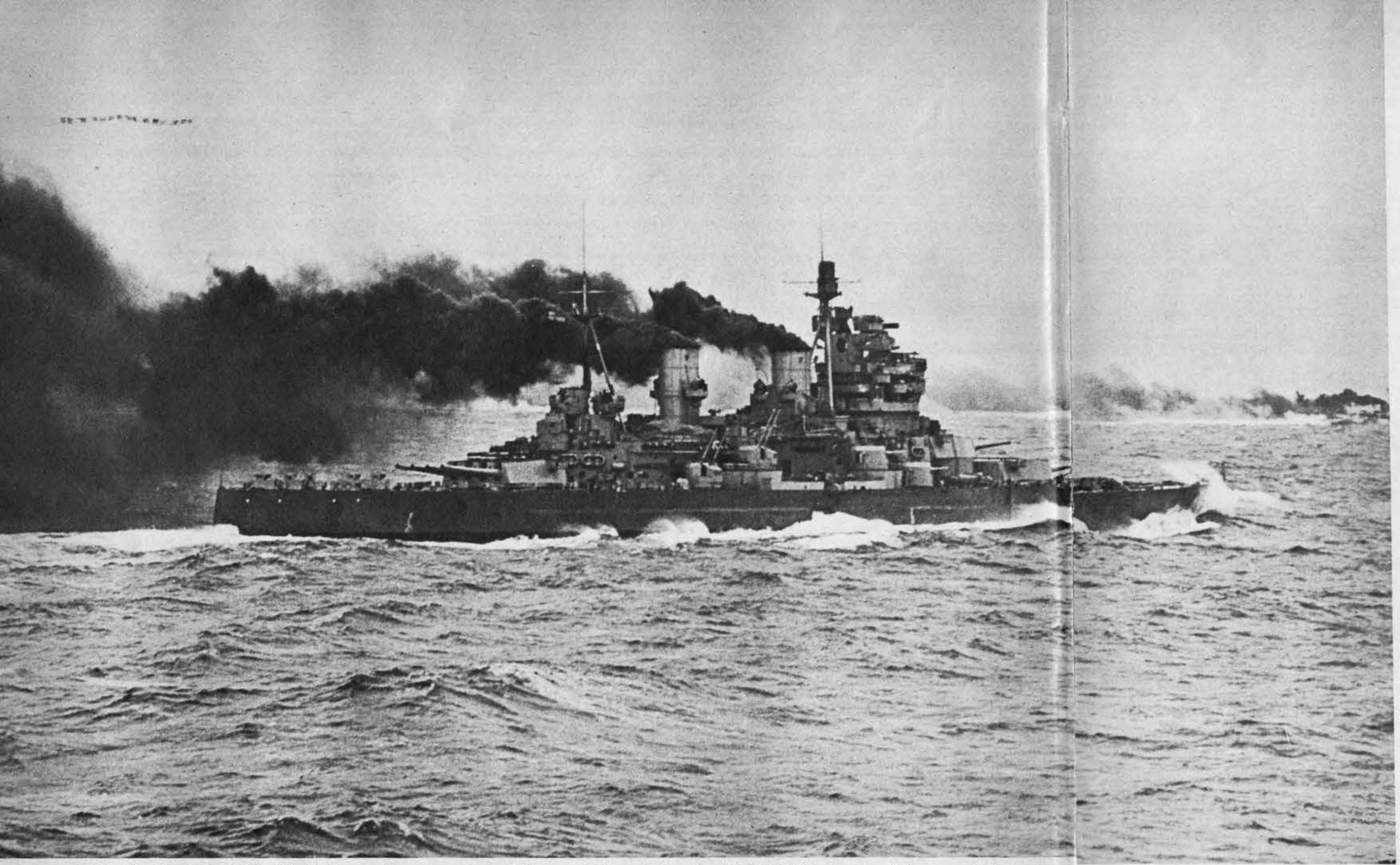
DD


TRIBAL CLASS

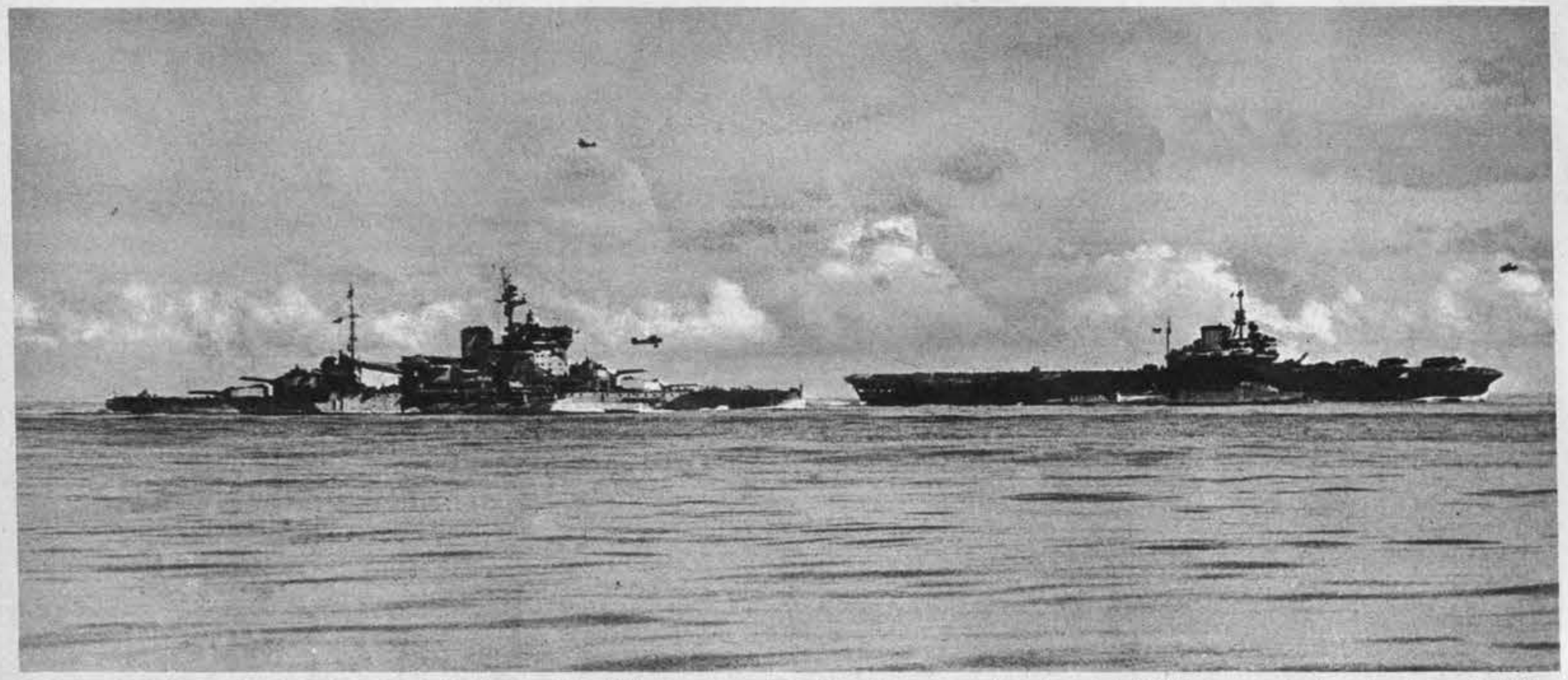

"J"-"Z" GROUP


"V"-"W" GROUP

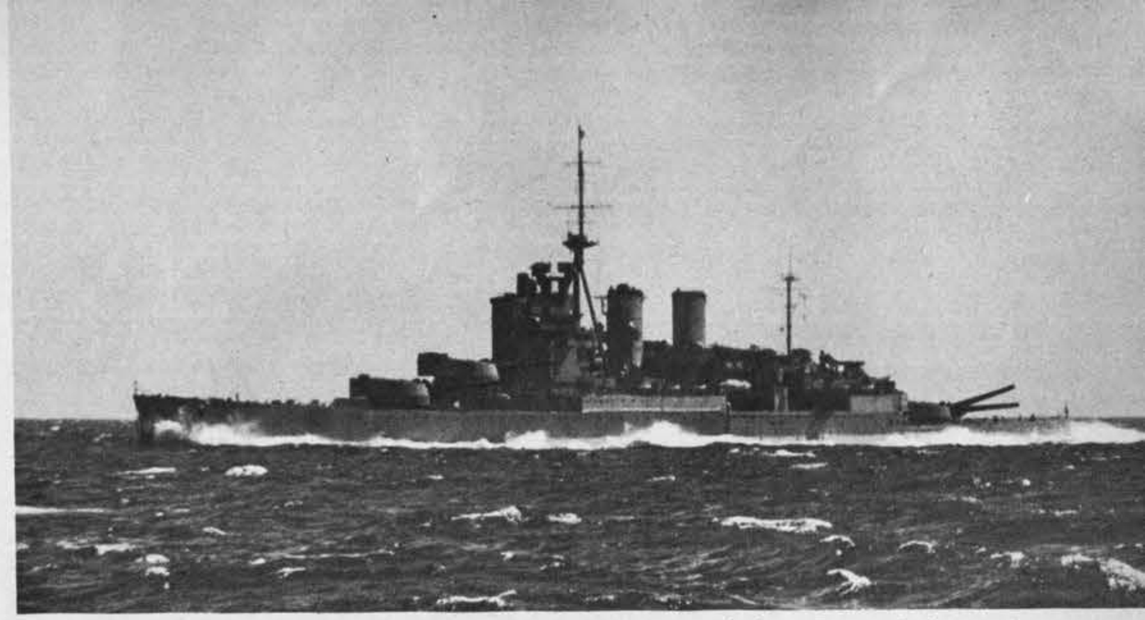
DIVISION OF NAVAL INTELLIGENCE—MARCH, 1945



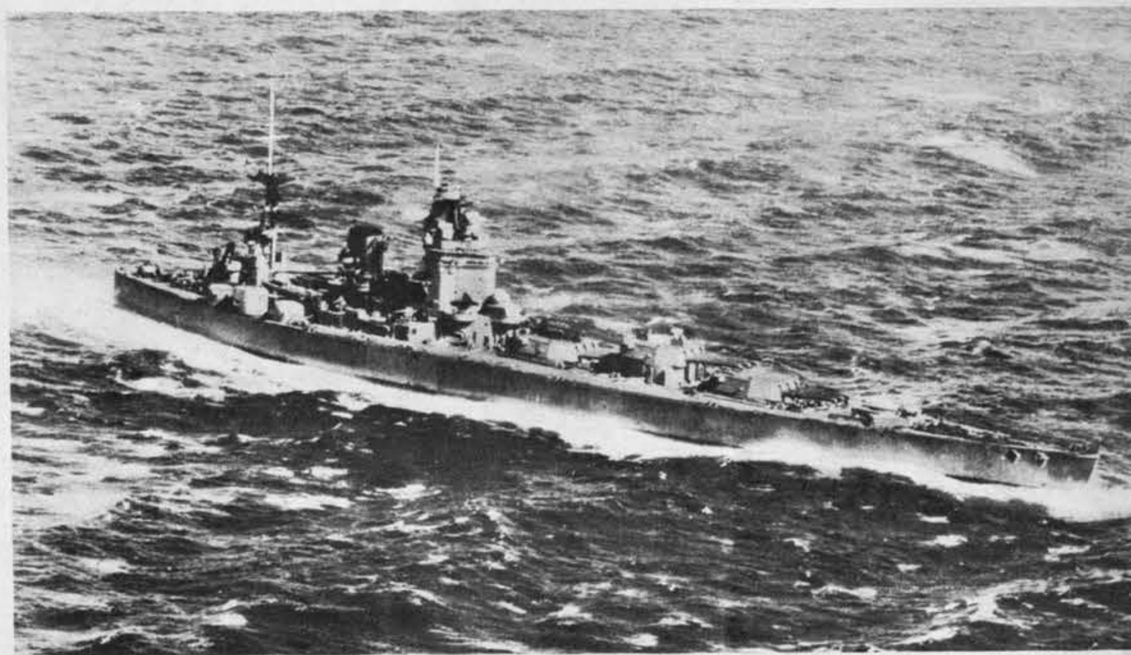
KING GEORGE V Swiftest and most modern of the Royal Navy's battleships, the King George V Class has heavy, upright stacks and light masting, both of which are hallmarks of British BB design. Ten 14-in. guns are housed in an unusual arrangement consisting of one four-gun and one superfiring twin turret forward and a single four-gun turret aft. The ship's superstructure is separated by well-deck space between the stacks, not concentrated in a central mass as on U. S. contemporaries.



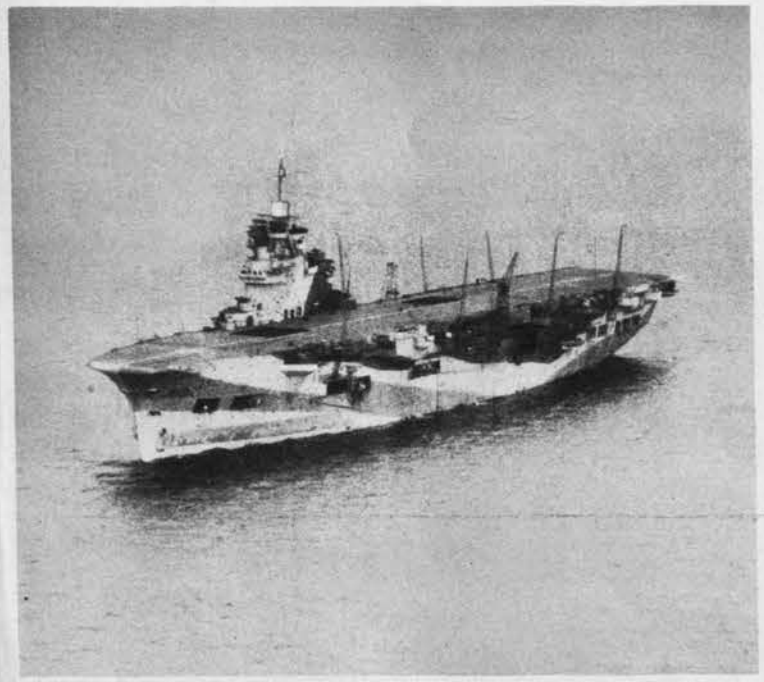
QUEEN ELIZABETH Blocklike mass of forward superstructure on H. M. S. Warspite (*left*) is typical of most British warships. Handling space for aircraft is left between stack and mainmast. Other units of the class differ slightly about bridge and stack. Illustrious Class CV (*right*) has low and rectangular island forward of amidships.



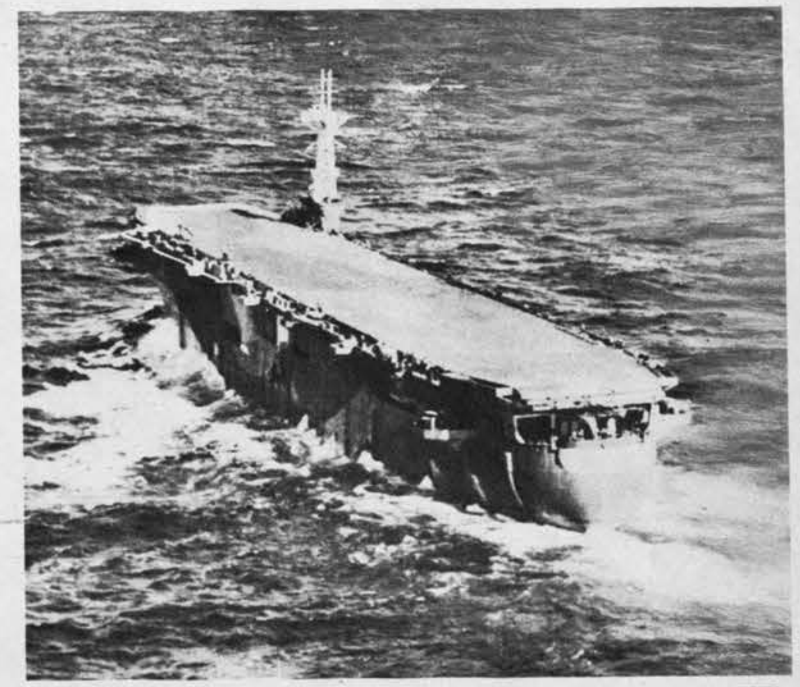
RENOWN Simple superstructure elements are spread along Renown's long, trim hull. Built in 1916, Renown is Britain's last surviving battle cruiser, has typical armament of six 15-in. guns in three twin turrets. Big stacks are closely spaced.



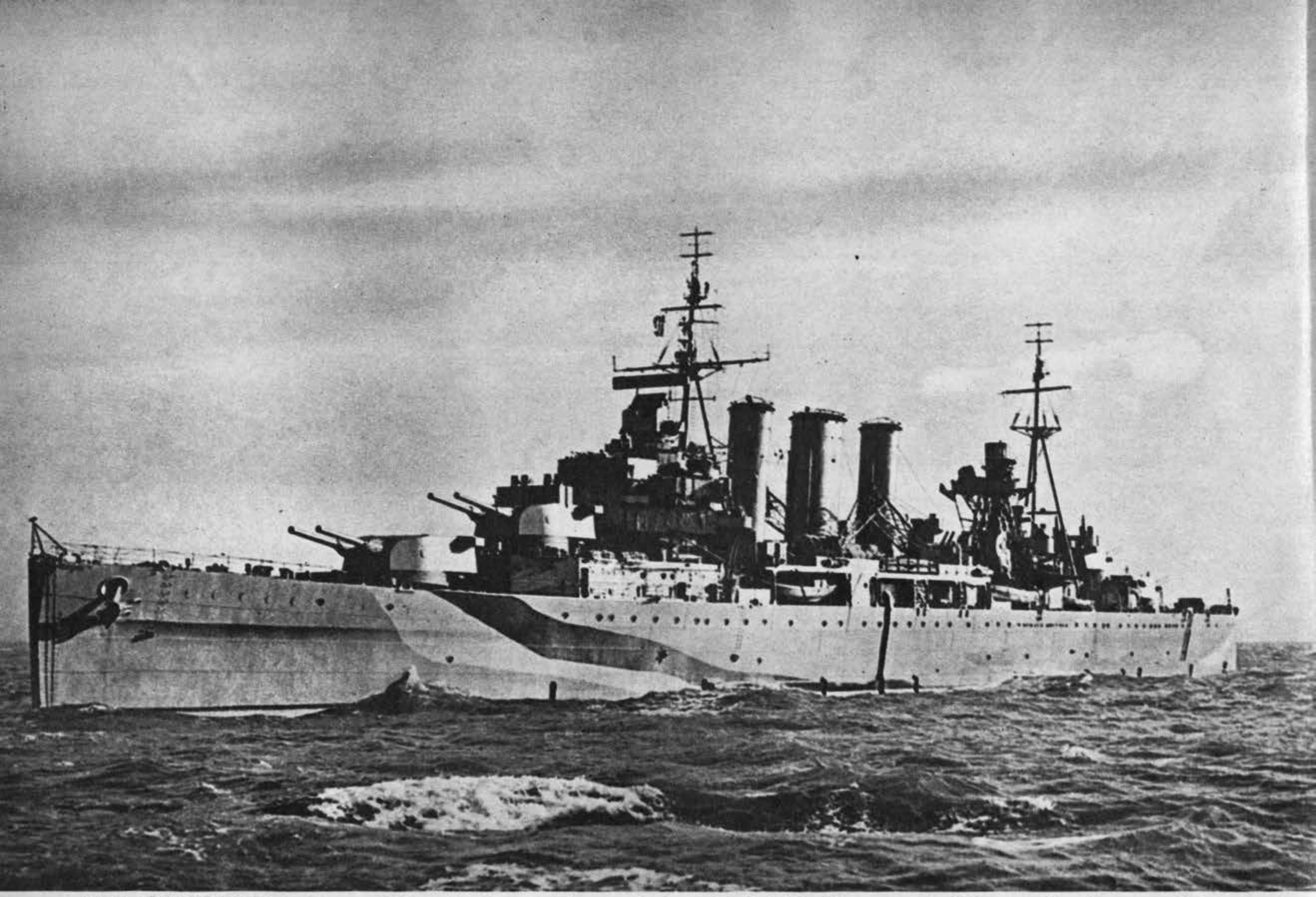
NELSON Tremendous length of Nelson Class foredeck allows full sweep for three 16-in. gun turrets. Tall tower bridge rises abaft midships section. Unusual design results partially from scaling down original 48,000-ton design to treaty limits.



UNICORN Begun as an aircraft repair ship, the Unicorn has served as a CVL. In profile it resembles the Illustrious, but has proportionately greater beam and freeboard.

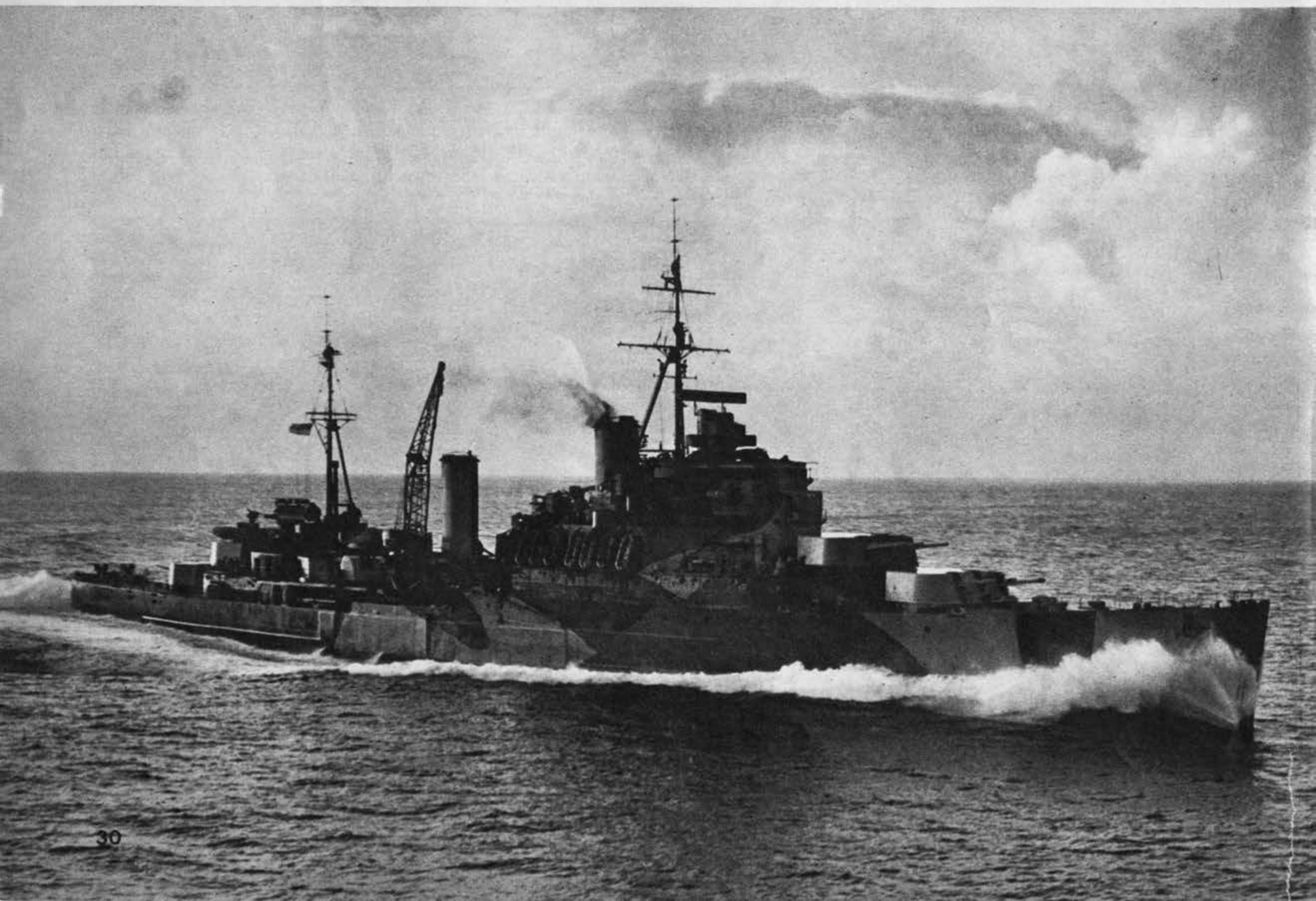


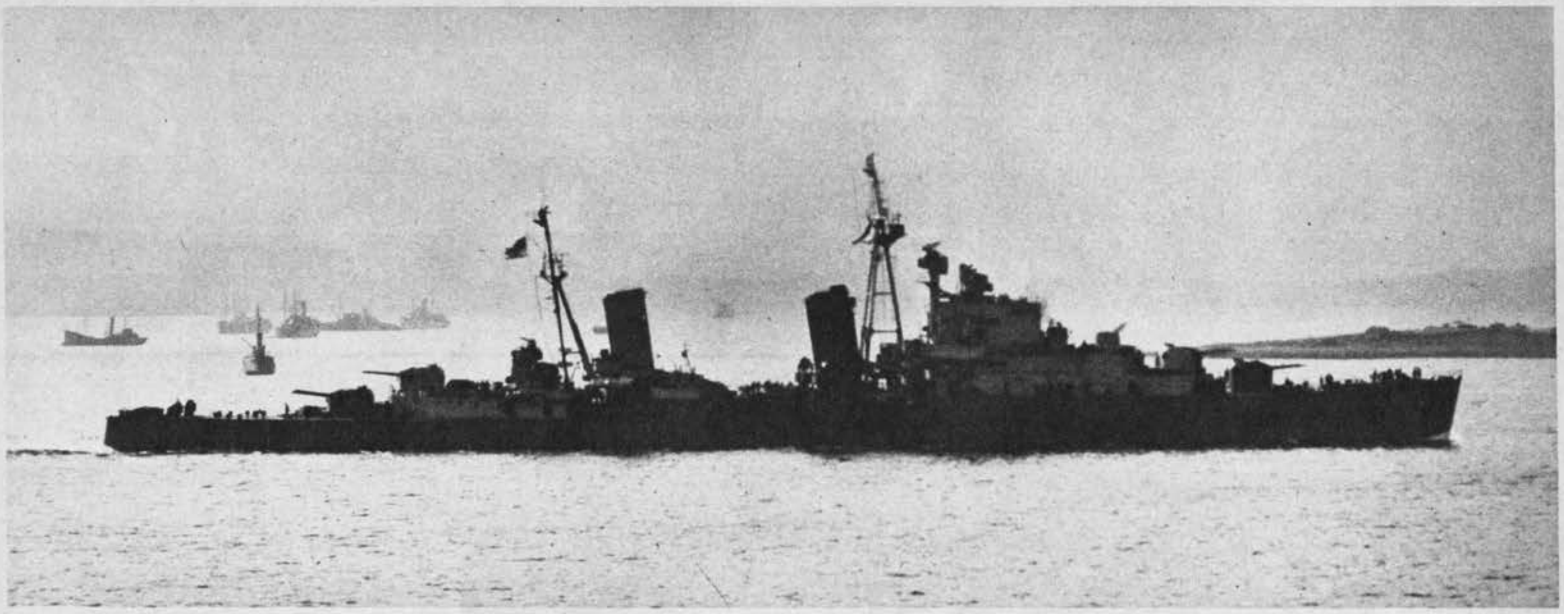
NAIRANA Except for Nairana Class, most British CVE's are U. S.-built Bogue Class ships. Nairanas are longer, lower than U. S. types, have low island with trestle mast.



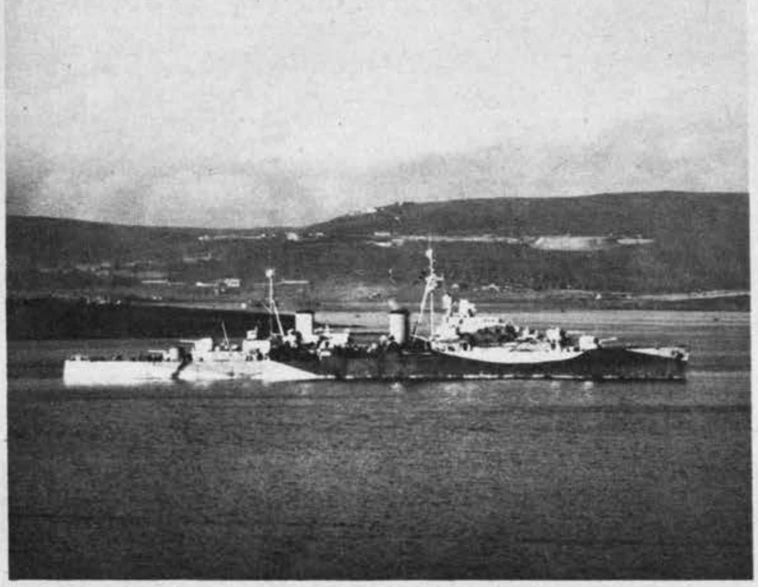
"COUNTY" Three raked stacks close together mark almost all British CA's (*above*). Devonshire, Norfolk and Kent Classes are all similar, go under "County" heading.

FIJI Abrupt vertical lines, stacks of unequal height dominate the design of Fiji-Uganda-Swiftsure CL's. Fijis carry twelve guns in triple turrets; others lack after superfiring turret.

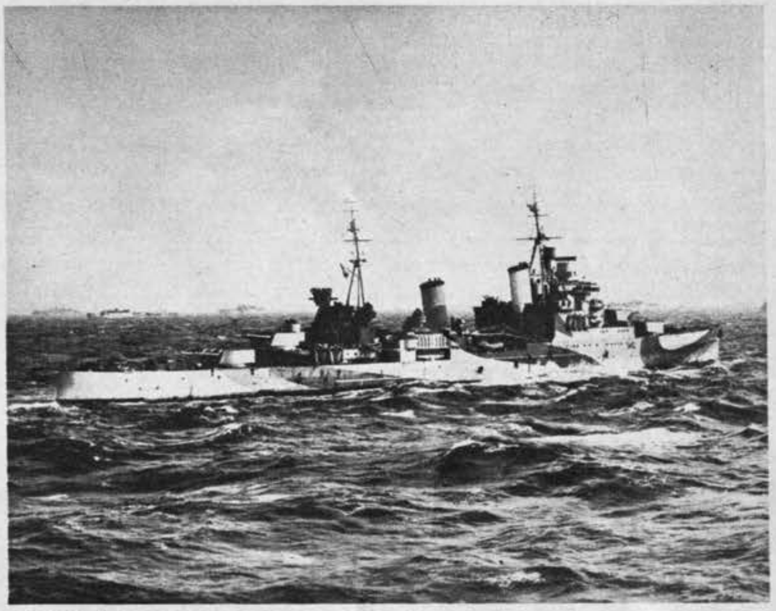




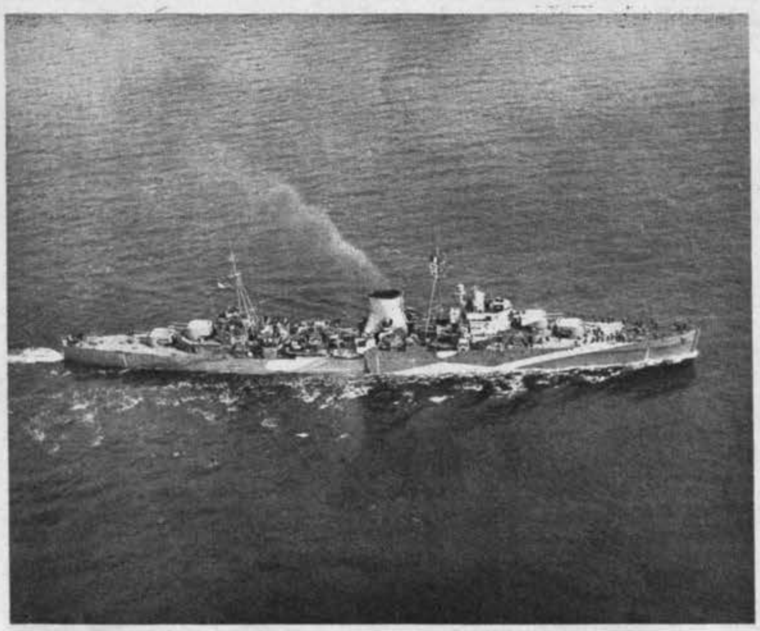
DIDO (RAKED) Together with the Fijis, the Dido Class in its two variations represents all of Britain's wartime cruiser construction to date. Didos are small and graceful and have widely spaced raking stacks. Parallel in design to the U. S. Navy's "antiaircraft" cruisers of the Atlanta Class, Didos have a battery of 5-in. dual-purpose guns in twin turrets.



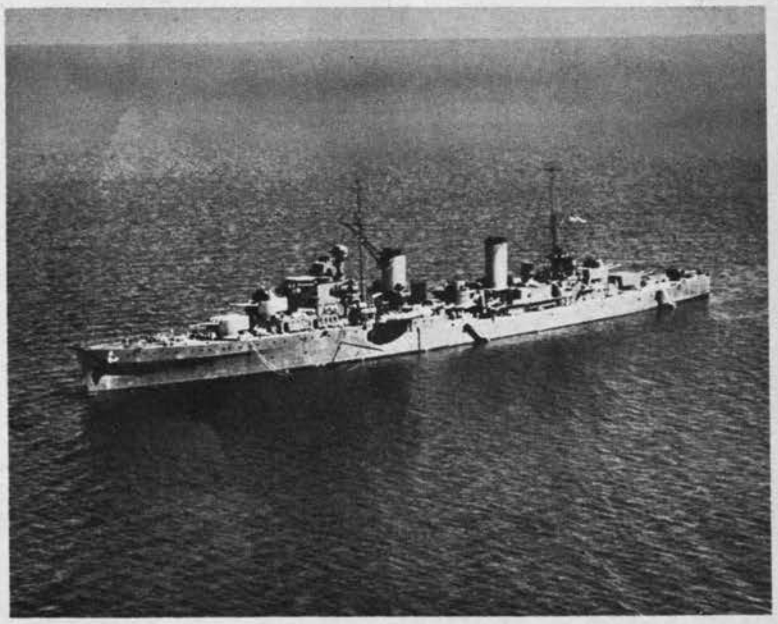
DIDO (UPRIGHT) Recent units of Dido Class have low, upright stacks. Forward deckhousing is lower; masts are upright on this version.



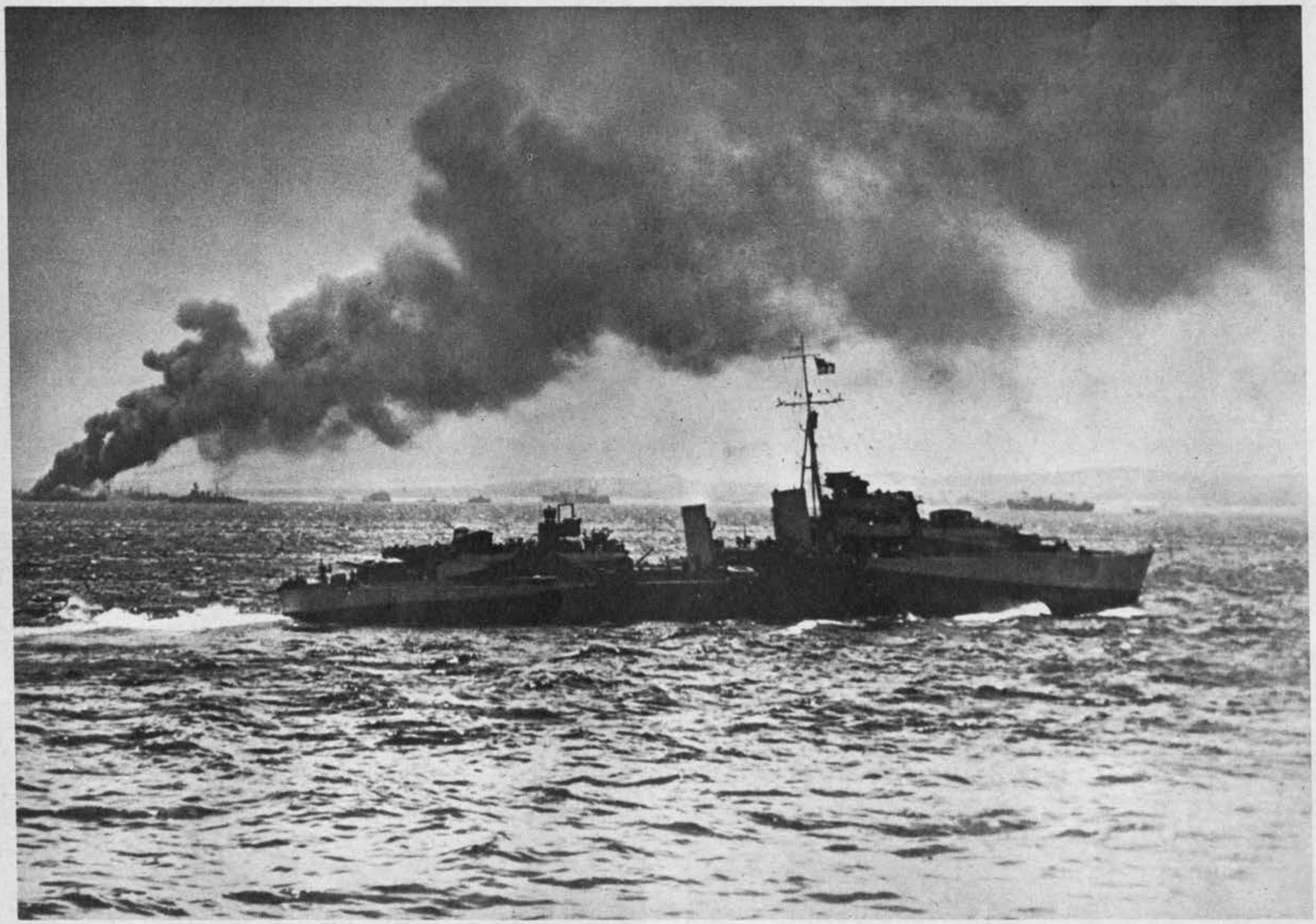
SOUTHAMPTON Southamptons have raked stacks and round sterns, are otherwise similar to Fijis. Forward stack rises from rectangular aircraft hangar.



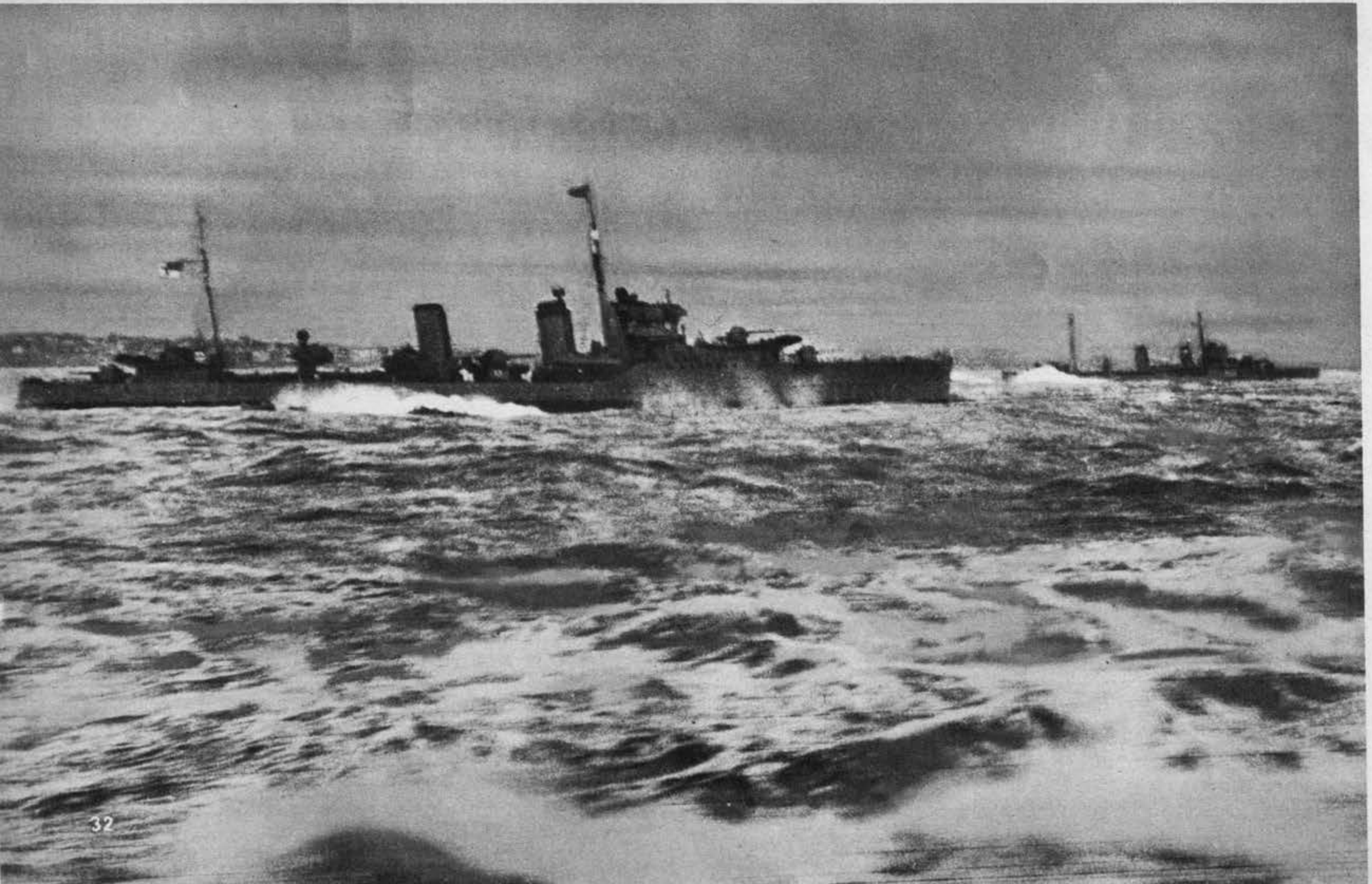
LEANDER Single stack sets the Leander Class apart from all other British cruisers. They have low superstructure, twin turrets. One unit is with New Zealand Navy.

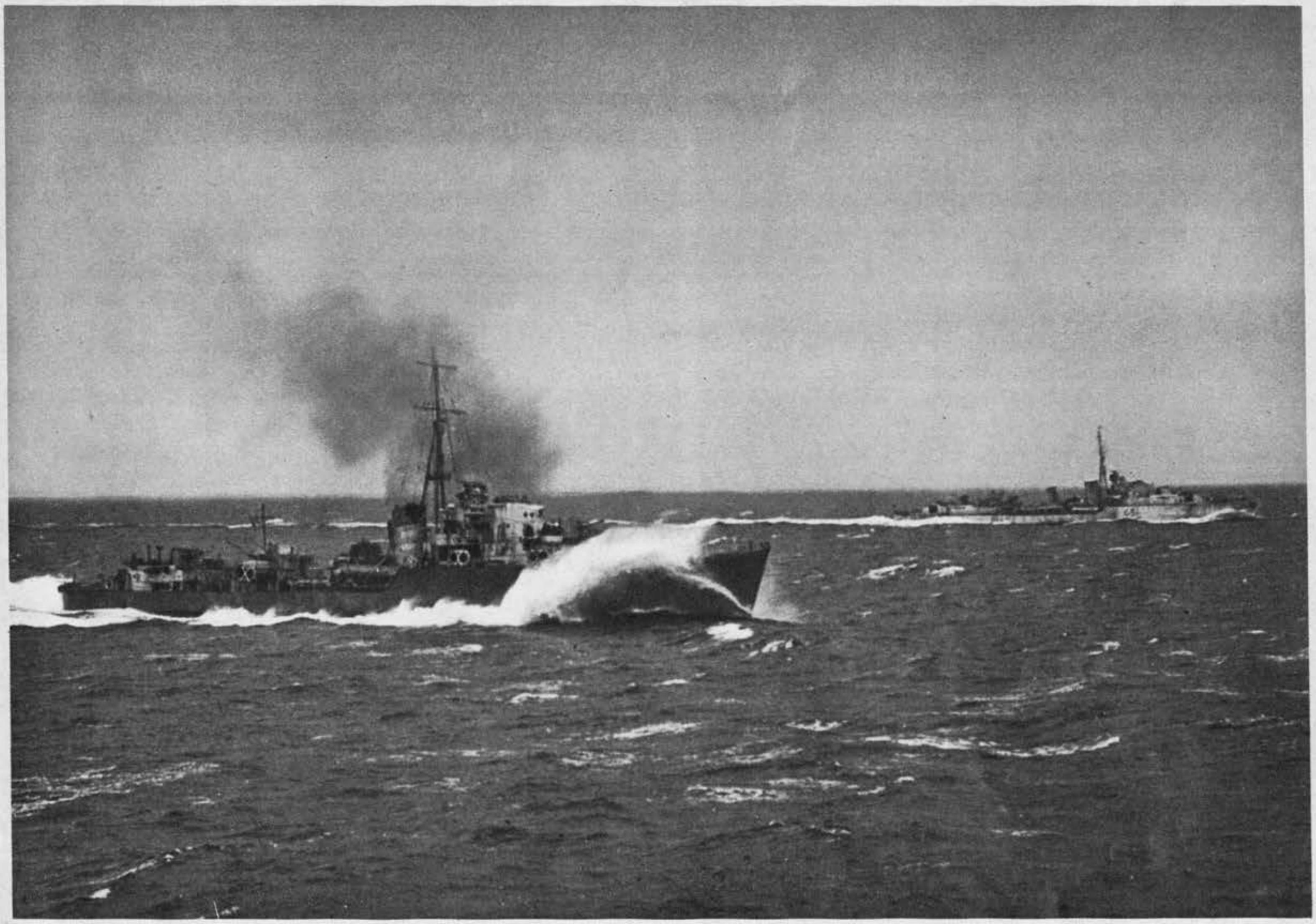


HOBART Sole survivor of its class, the Australian CL Hobart is a "Modified Leander." A change in the boiler-room arrangement made two widely spaced stacks necessary.

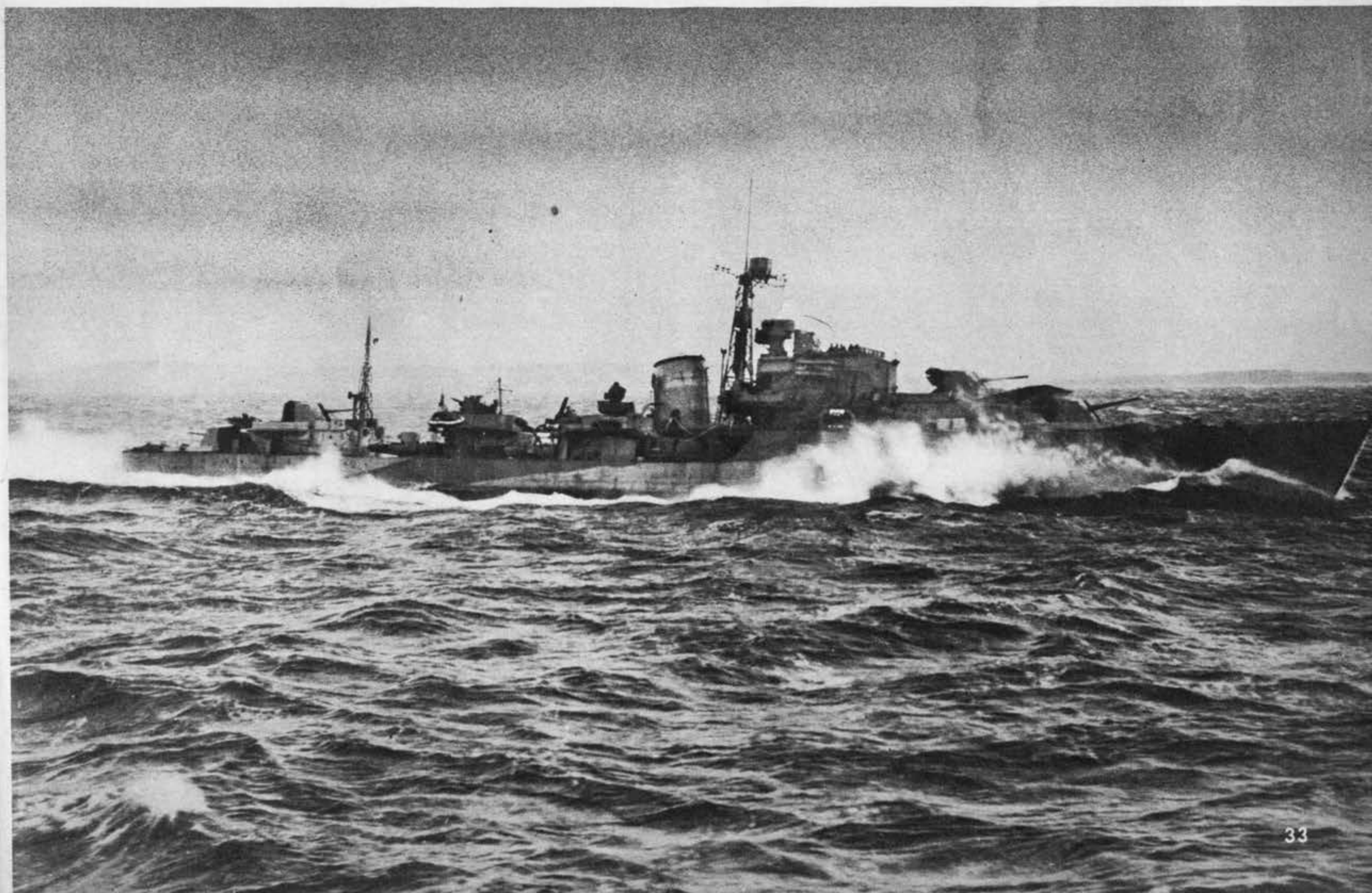


TWO STACK "Tribal" Class (*above*) is one of Britain's largest destroyer designs. Low and heavy in profile, they have four twin-gun mounts and long, low deckhouse aft. "A"-"I" Classes (*below*) are smaller fleet destroyers with uncluttered after decks. Both show the high forecastle and blocky bridge evident on all British DD's except for the U. S.-built "Town" Class.

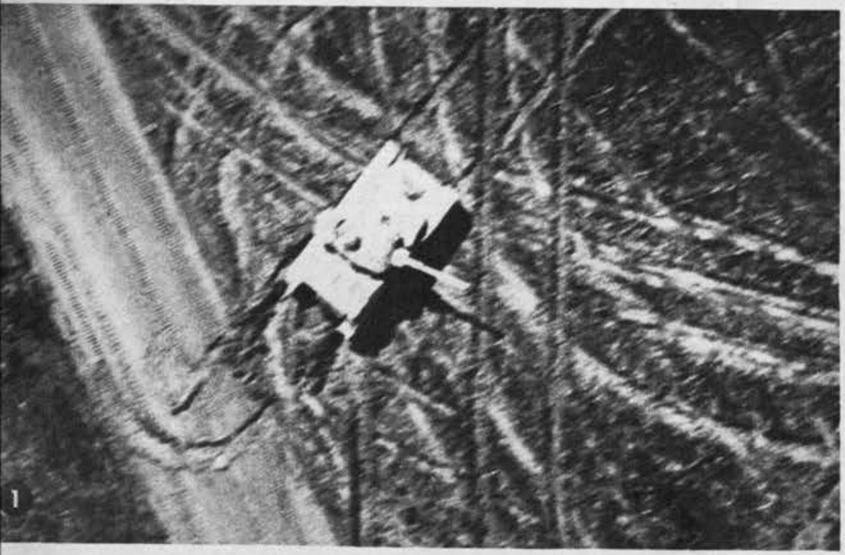




ONE STACK The newer British destroyers are all of a sturdy, one-stack design here represented by the "O"-"Z" Classes. Note the low, square bridge. Trestle mast (*below*) is gradually replacing the original tripod type (*above*). "J"-"N" Classes are very similar in profile but have twin mounts, two forward, one high aft. A "Tribal" is shown in the background (*above*).



QUIZ NO. 3: SEEN FROM ABOVE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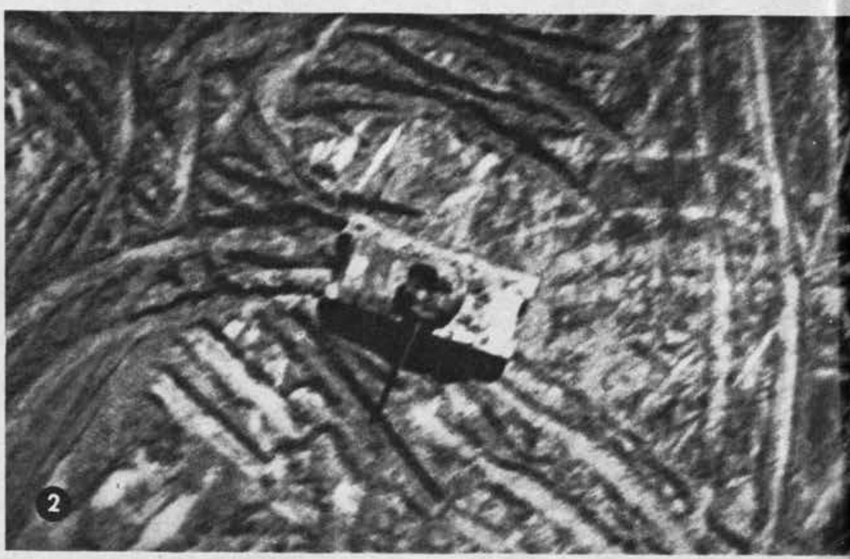
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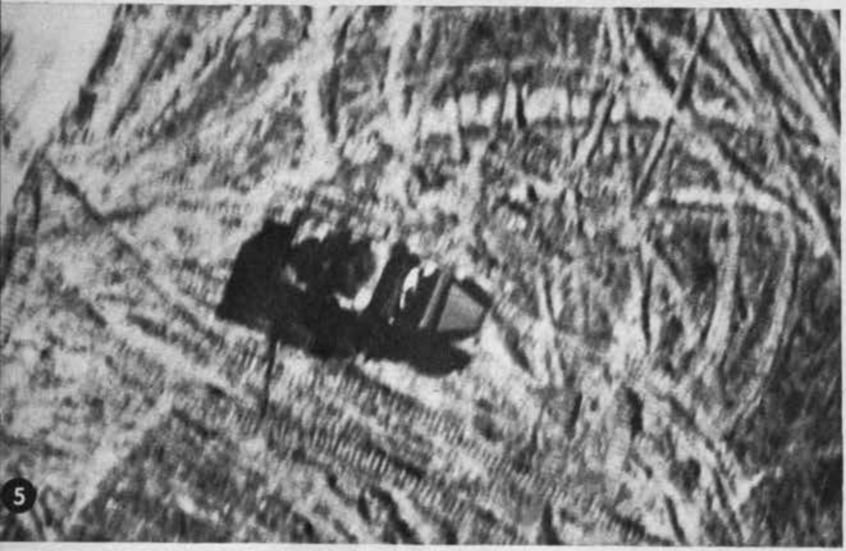
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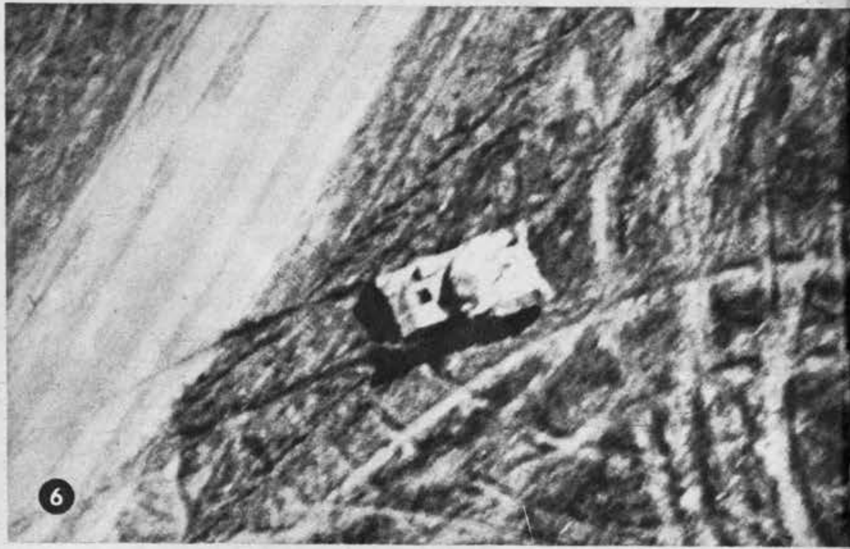
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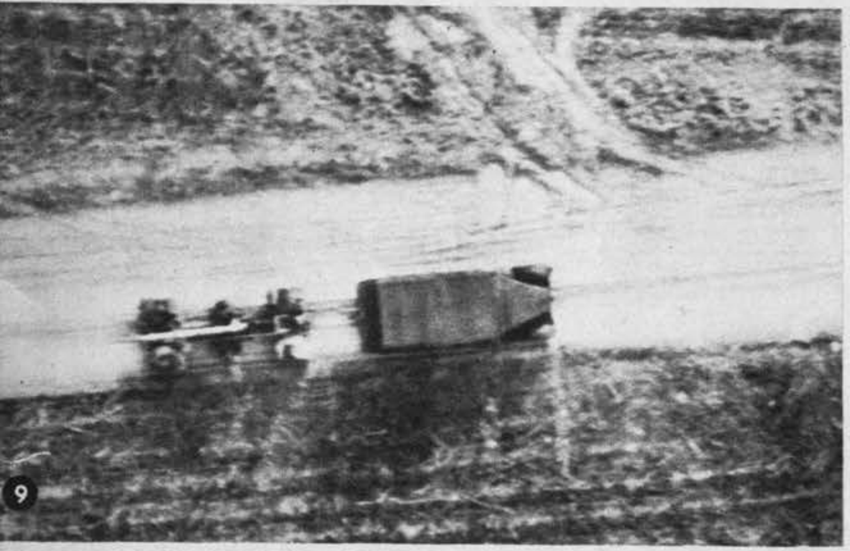
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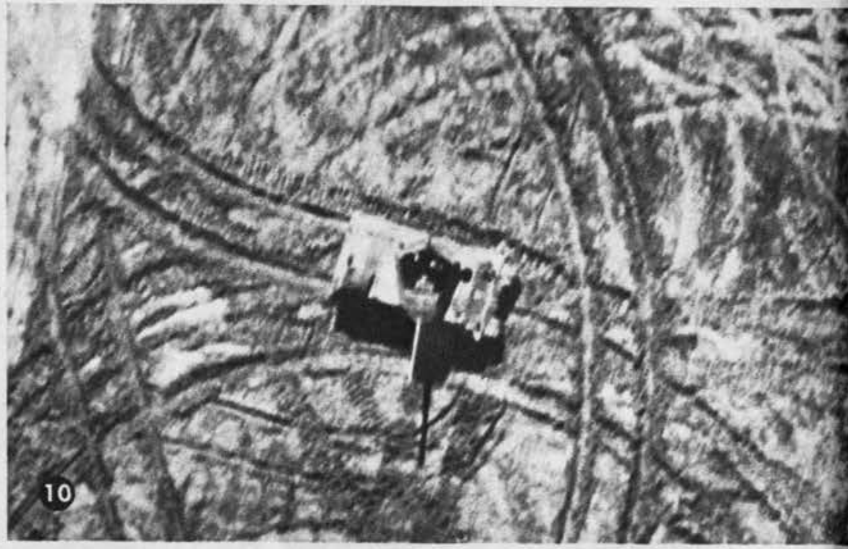
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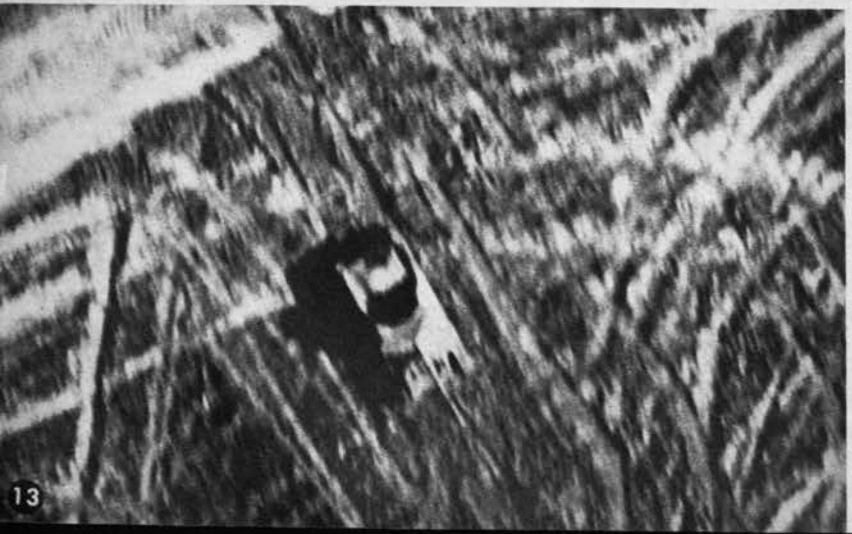
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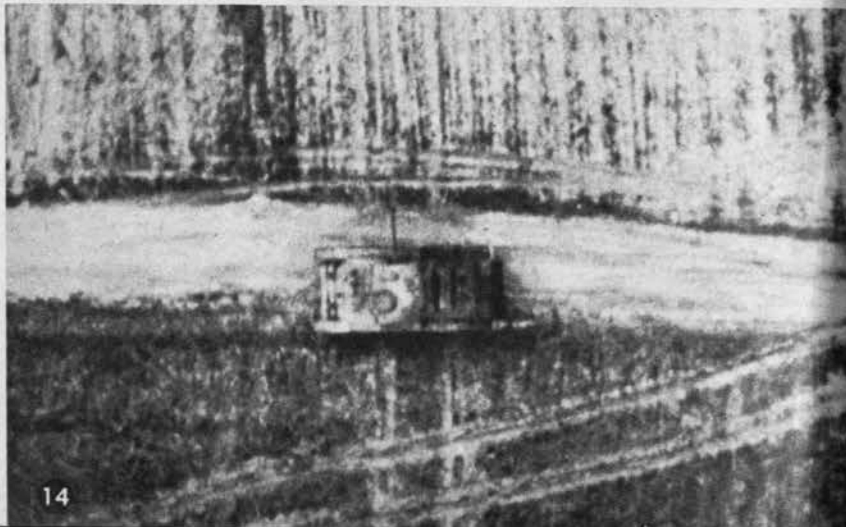
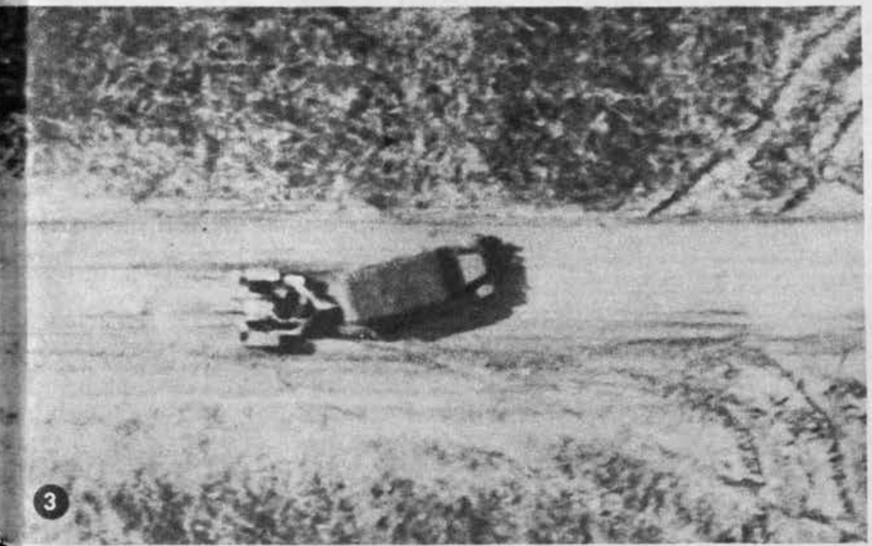

14

While planes depend chiefly on briefing or radio to identify ground forces, low-flying pilots are forced to make recognition decisions on their own. It is to help them that this month's armored-vehicle quiz is made up entirely of overhead views. The vehicles below are shown as they would appear from approximately 300 feet since from 1,000 feet tank recognition is usually impossible without the aid of markings.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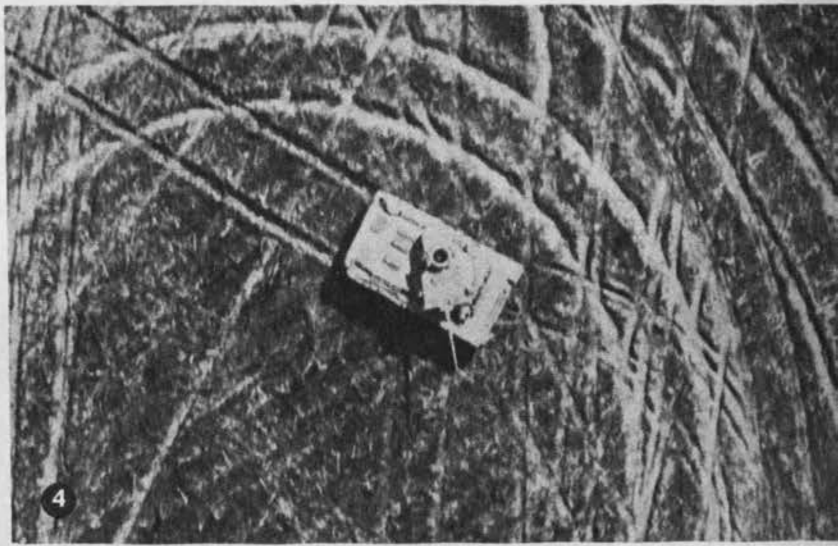
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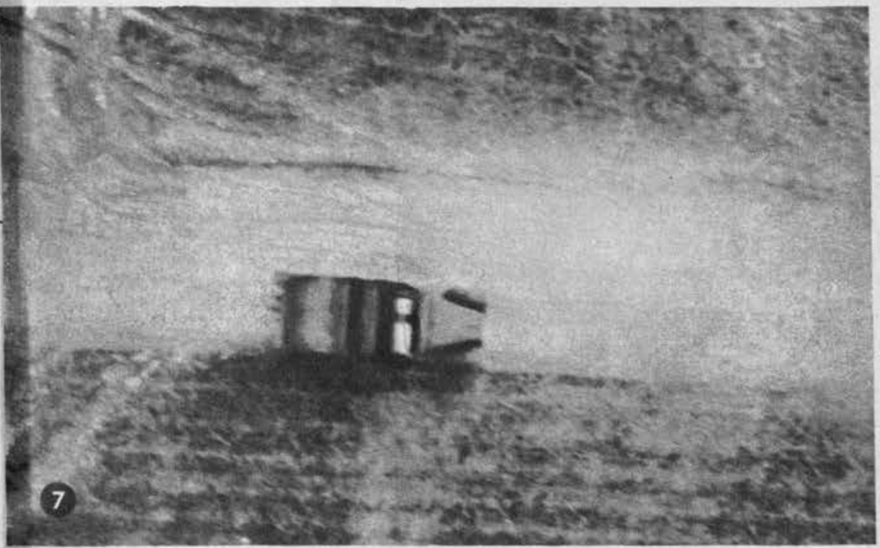
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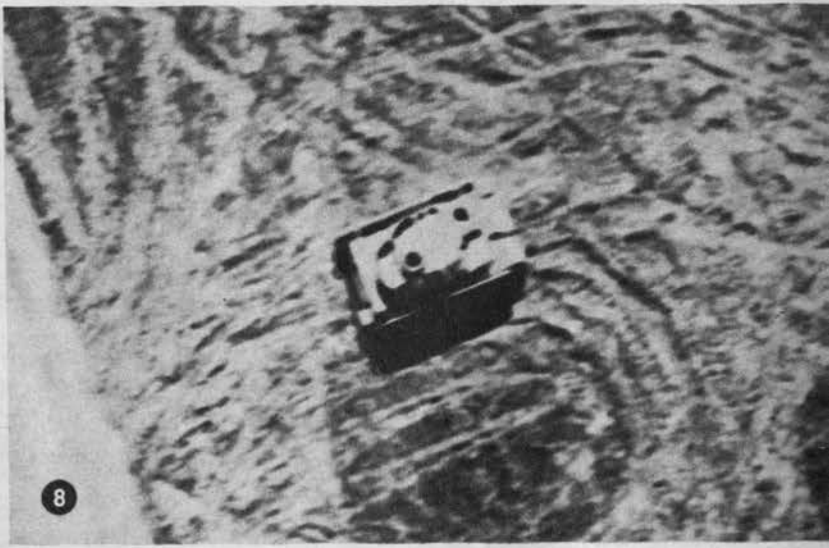
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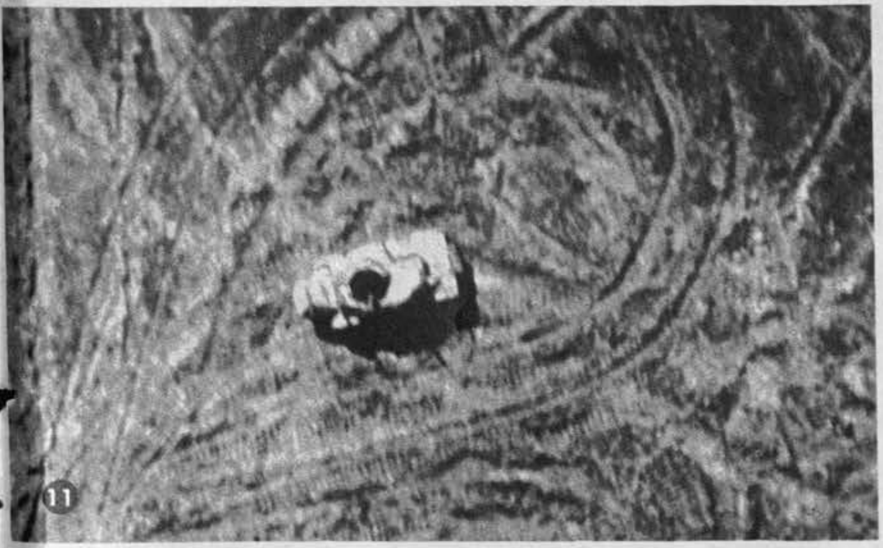
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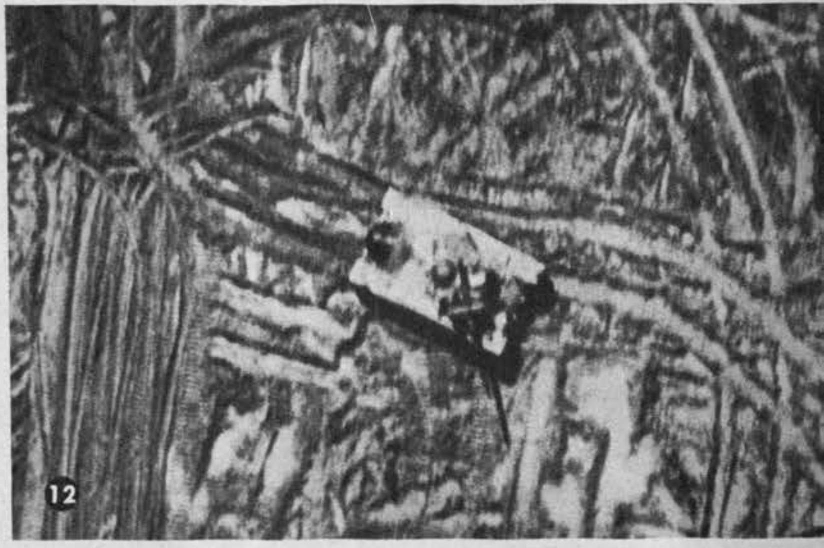
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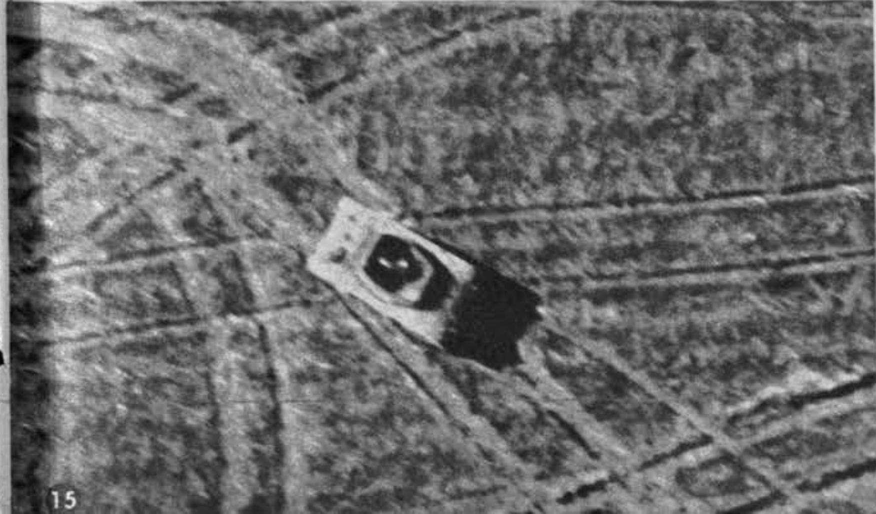
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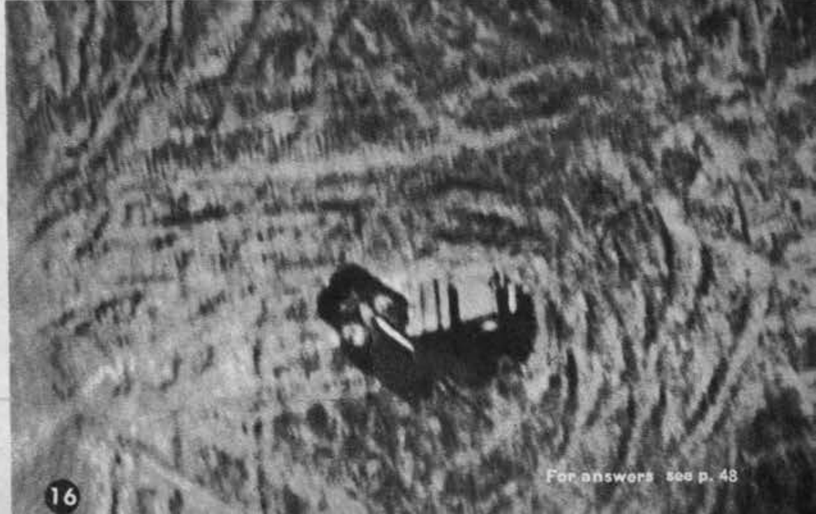

16

For answers see p. 48

U.S. TANK RECOVERY

Versatile vehicles rescue tanks, effect battlefield repairs

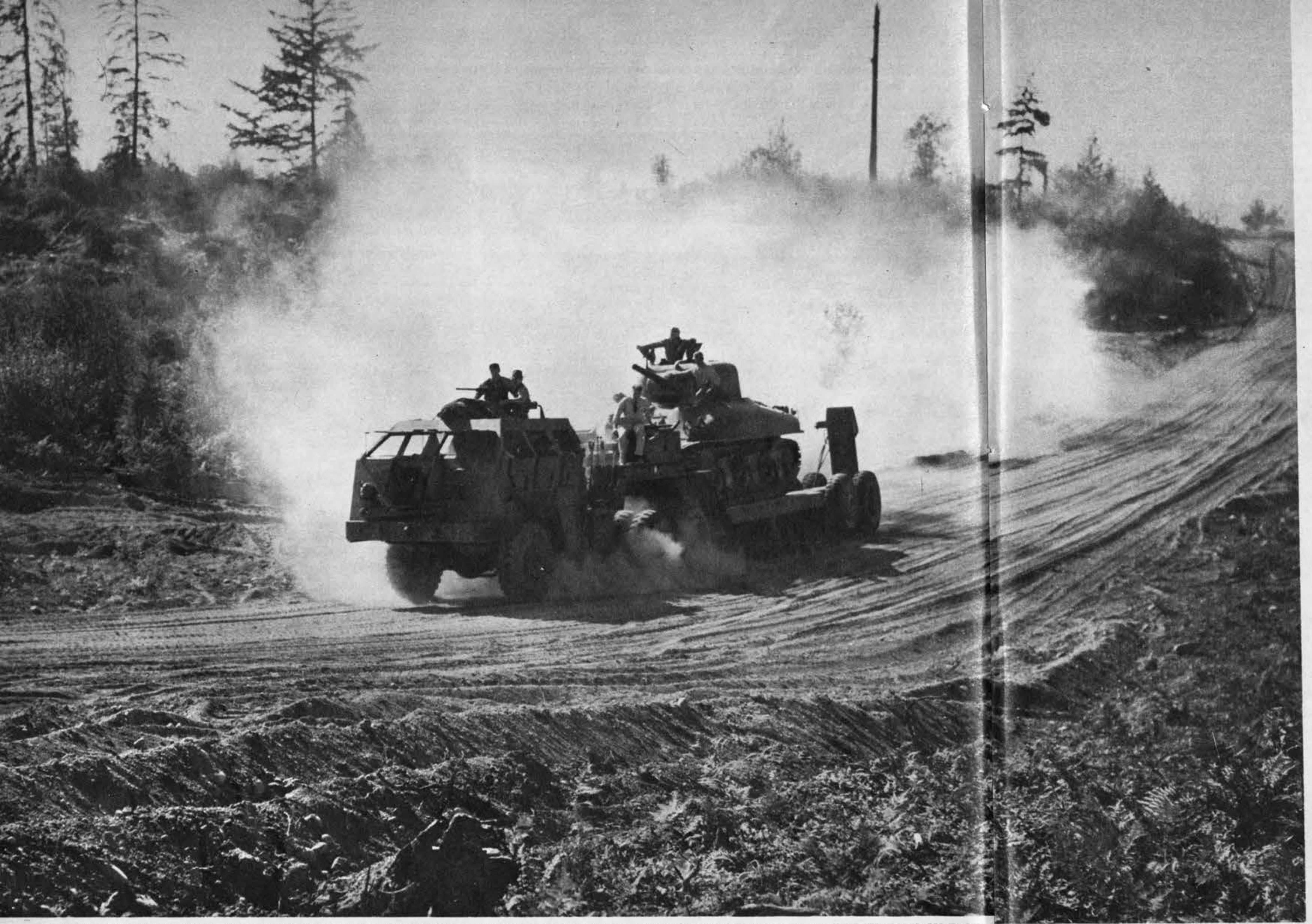
Transporting a tank from Detroit to Aachen takes several weeks; transporting one from Detroit to Manila takes a number of months. And since battles do not wait for shipments from war plants it is imperative to get salvage and repair facilities as close to the firing line as possible. To make such battlefield repairs and to snatch damaged vehicles from the danger zone for more extensive rebuilding, U. S. ordnance experts have developed a powerful truck-trailer combination and have adapted three tank chassis (M-3, M-4 and M-24) for vital task of tank recovery.

The idea of front-line tank salvage was inspired by the Germans. In 1941 U.S. observers in North Africa noted how Rommel's mechanics would prowl out into the battlefields under cover of darkness and with the help of specialized vehicles tow off both their own and British tanks, put them into fighting trim and send them back into action. Besides efficient night repair, the Germans sometimes even managed to patch up their armor right in the midst of a fight. So effective was their system that at times the British were forced to destroy their own damaged tanks which they could not tow far behind their lines.

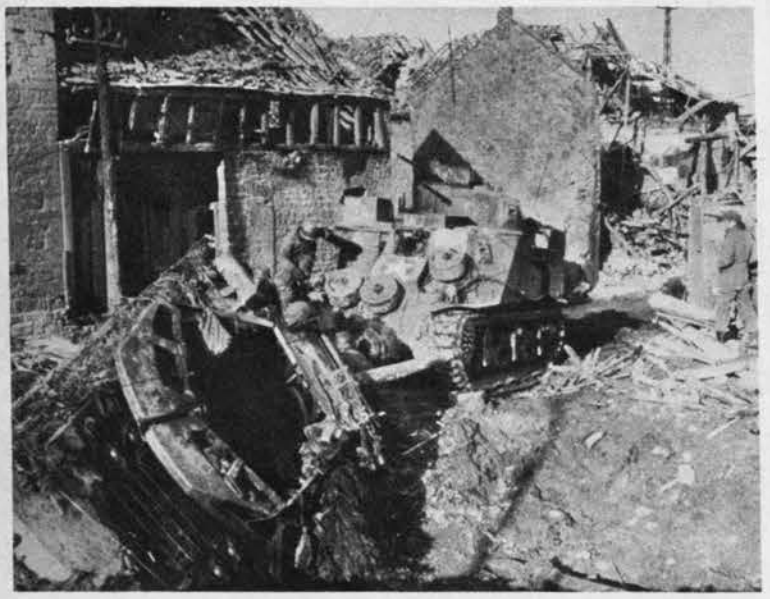
When U. S. forces invaded North Africa late in 1942 they had with them their own brand of tank repair unit, generally a truck housing an air-conditioned workshop equipped with tools and spare parts. In one engagement their trucks required only half an hour to repair ten M-4's crippled by a surprise salvo from concealed Tigers. When the Nazis went after the remaining U. S. armor, the ten Shermans beat off surprised German reserves, then slashed at the main column from the rear to gain a complete victory.

While German ingenuity first suggested tank-recovery procedure to the U. S. Army, the vehicles now being used by U. S. forces are completely American in design. Most powerful of these is the 40-ton M-25 truck-trailer combination (*left*). Operating by itself, the truck (M-26) can repair tanks under fire or tow them to safer points if the damage is too heavy. Sufficiently armored to withstand small-arms fire and shell fragments, it carries a ring-mounted .50-caliber MG for antiaircraft defense. In combination with the trailer (M-15), the truck can carry one medium or two light tanks away from the scene of action or bring equivalent weight up to the front, thereby greatly extending vehicles' combat range. Powerful winches mounted behind the cab do the bulk of the recovery work, loading and unloading the trailer by way of its rear ramp.

For tank recovery alone, U. S. troops have the M-31 (M-3 chassis), M-32 (M-4 chassis) and T-6E1 (M-24 chassis). Resembling the tanks from which they were developed, these vehicles are capable of towing their own weight or lifting 30,000 lb. in the case of the M-31 and M-32, and 20,000 lb. in the case of the T-6E1. On the following two pages are some further examples of the ingenuity of U. S. tankmen and the adaptability of U. S. tanks.

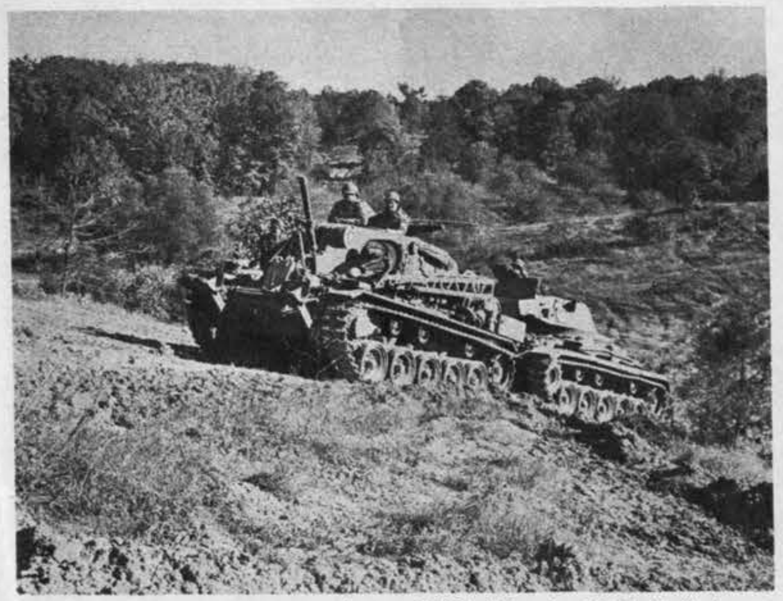


M-25 TRUCK-TRAILER COMBINATION ROARS DOWN A TESTING ROAD CARRYING AN M-4 TANK. SLAB-SIDED CAB HAS THREE LARGE WINDOWS ON EACH SIDE. TOP SPEED ON LEVEL TERRAIN IS 28 M. P. H.

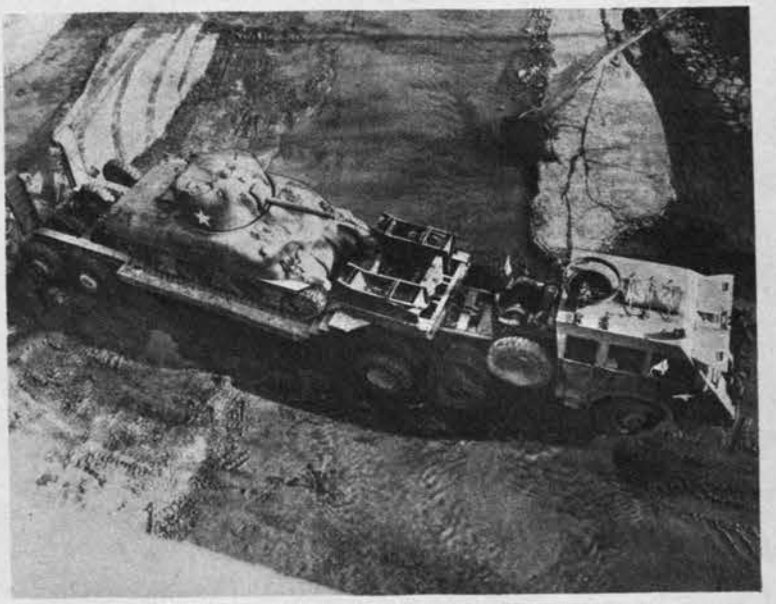


Wrecked M-10 is hauled out of a crater by an M-31. Note spare bogie wheels on hull and bow. The side gun and turret gun are dummies.

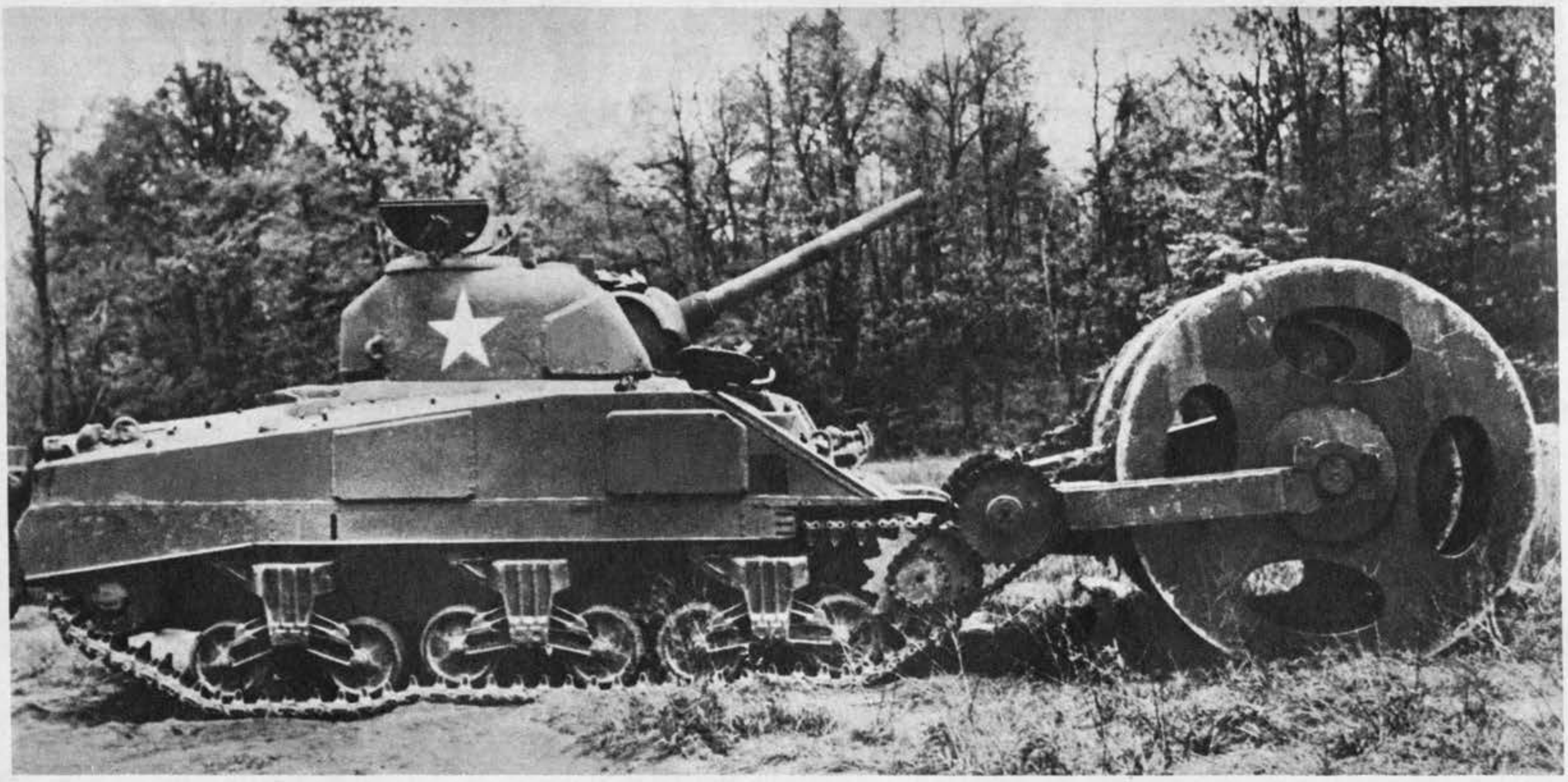
Two M-4 chassis stand out clearly as an M-32 tows a disabled Sherman to safety. An 81-mm. mortar can be seen in front of M-32's turret.



A T-6E1 takes steep grade, towing an M-24. Like the M-32 (*left*), it carries a mortar in front. Center section, however, looks less like a turret.



Its great length (about 57 ft.) helps distinguish the M-25 combination from above. All the wheels in front are part of the M-26 truck.

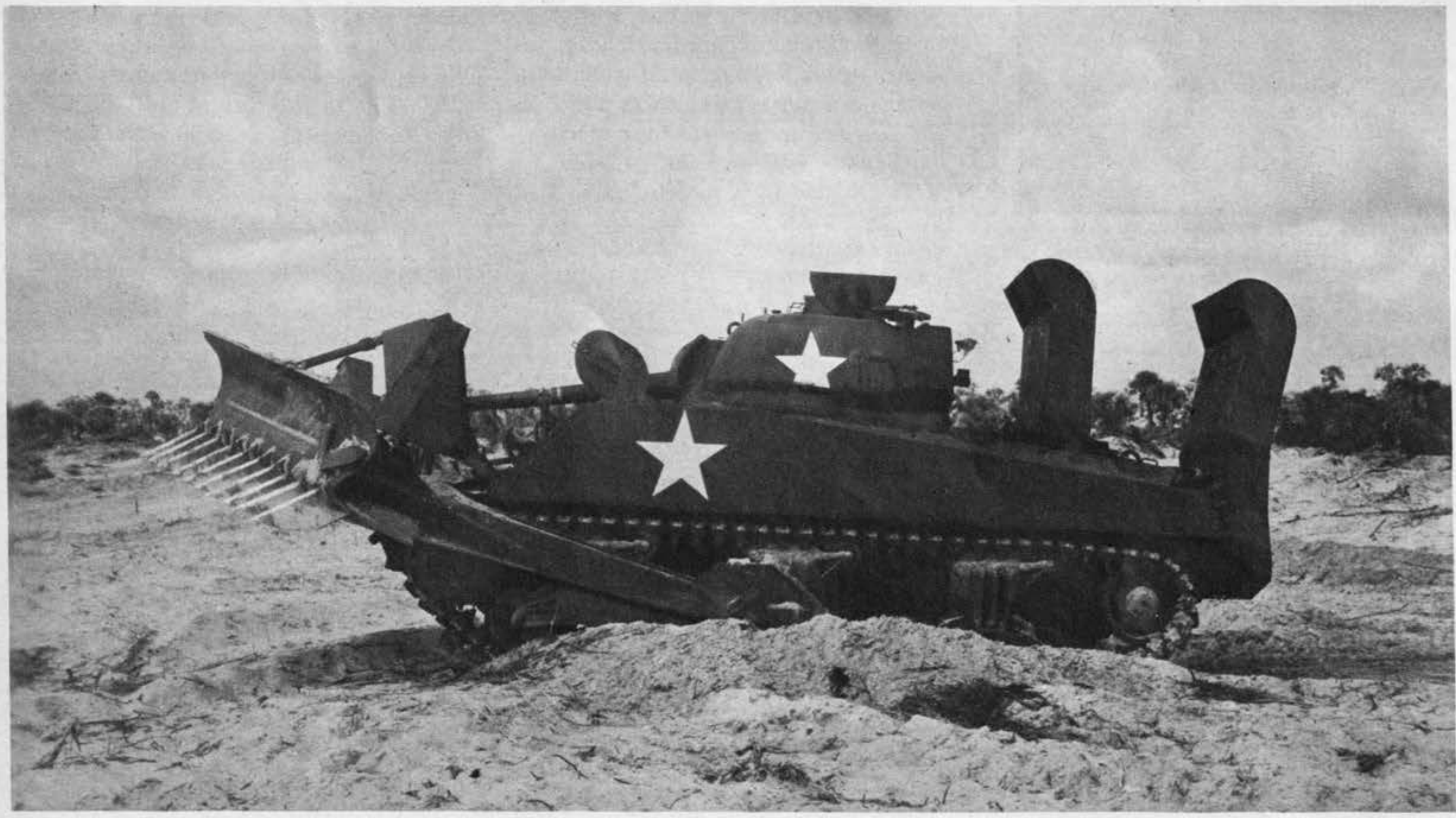


Mine exploder, T-1E3, is attached to an M-4 tank's bow and driven by the sprockets, enabling the Sherman to retain its full turret armament. Resembling an outsized lawn roller in side view, the T-1E3 detonates mines with ten separate disks mounted in two spaced groups of five.

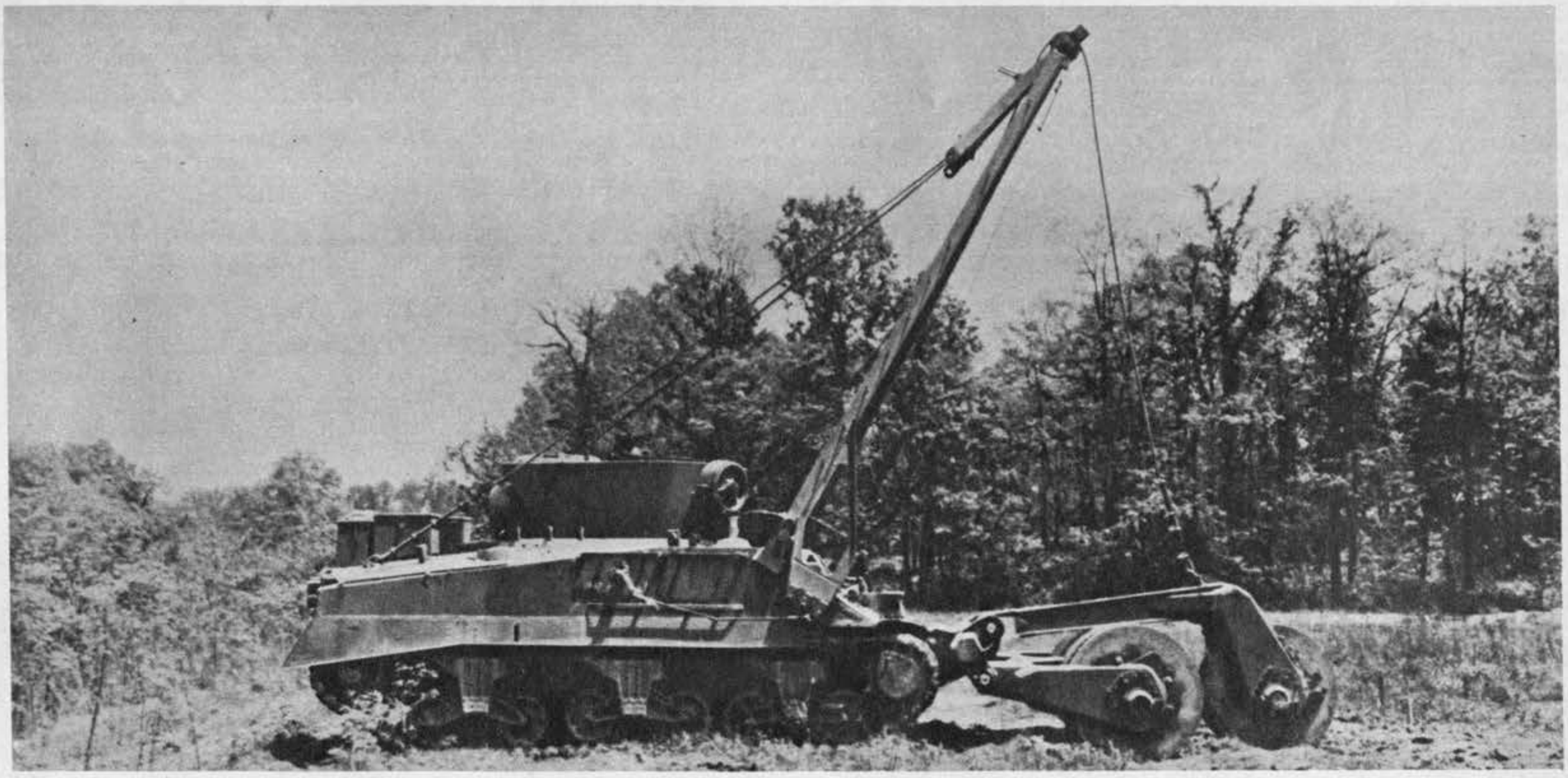
MINE EXPLODERS & A BULLDOZER TANK

Running interference for U.S. ground troops is a varied array of attachments which plow up or detonate mines, slash through hedgerows, clear away obstacles in fields and towns. The standard equipment shown was developed as a result of combat need.

With both the Germans and Japanese sowing mines, it became necessary for Allied tanks to have antimine equipment or else wait for engineers or infantry to open the way. Among the first of the tank-mounted devices was the Scorpion which the British

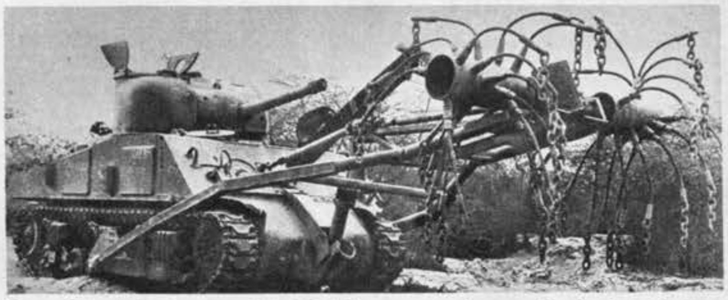


T-5E3's rakelike attachment plows up mines with the 22 teeth attached to its V-shaped blade. Controlled by a hydraulic jack, it is designed to be kept at the same depth in the ground even in the roughest terrain. The T-5E3 is usually attached to the center bogies of the M-4.



Three sections of ingenious T-1E1 mine exploder have six disks each for detonating. Attached to an M-32 tank recovery vehicle, the mine exploder is helped over rough spots in the terrain by the hoist cable and boom. The T-1E1 gives full coverage to the front of the vehicle.

attached to the hulls of their Shermans (see *Journal* for August). Consisting of flailing chains, it was similar to the field improvisation on the U. S. Marine tank at right. Disks rather than chains set off the mines encountered by the T-1E3 (*top left*) attached to a regular combat vehicle, and by the T-1E1 which works in combination with a modified M-32. Other bulldozerlike attachments are the toothed T-5E3 mine excavator and the M-1 dozer blade. The latter is not used against mines but does a variety of other jobs.



Revolving chains on this M-4 detonate mines with their whirling tips. As with dozer blade, attachment is to bow and central bogies.

Bulldozer tank helped uproot the Nazis dug in among the Normandy hedgerows, is capable of clearing and construction jobs while under small-arms fire. Raised and lowered by a hydraulic jack, the blade can be jettisoned in approximately ten seconds when no longer needed.

AIR TRANSPORT

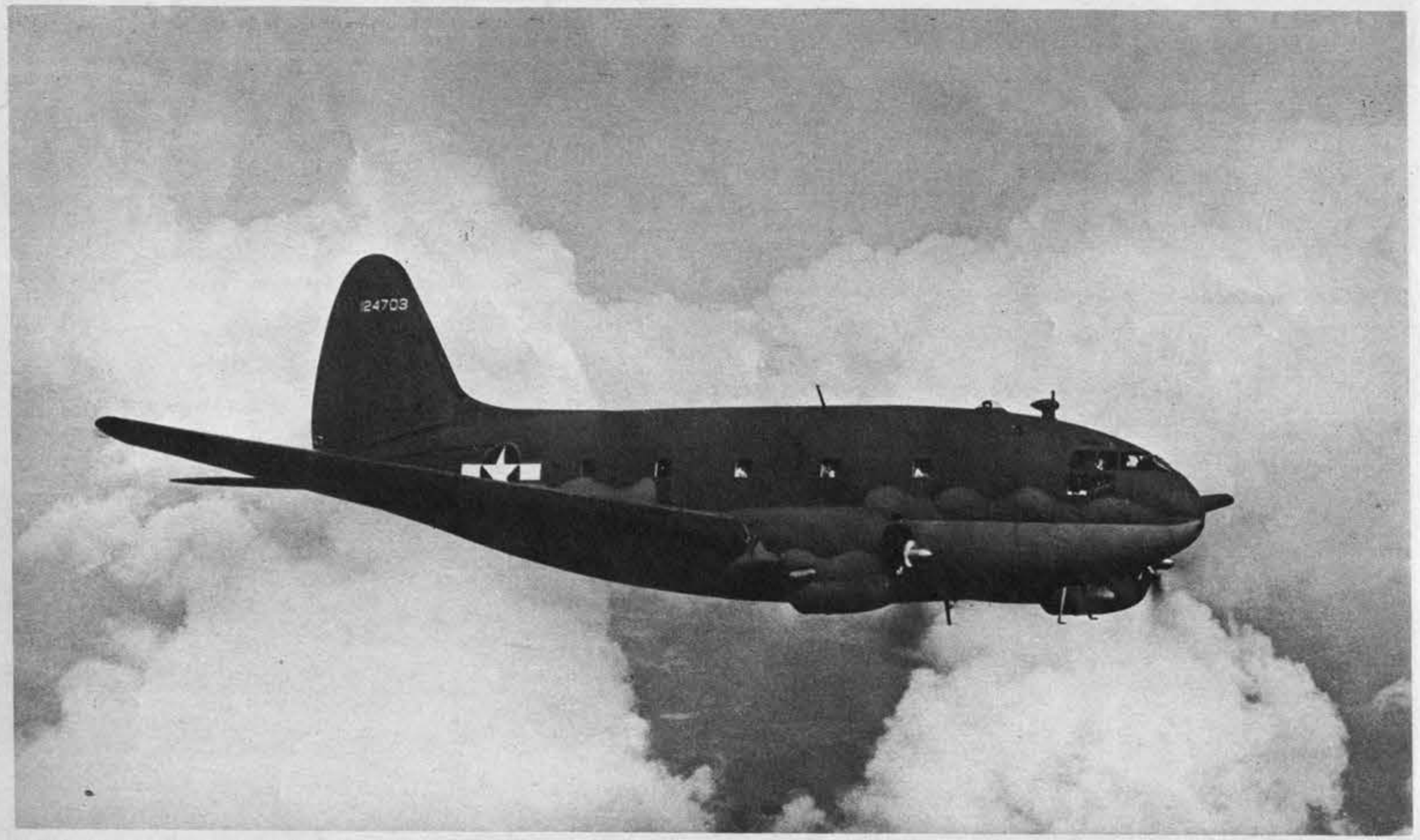
Big planes service global network of sky routes

With the great need for swift transfer of high priority personnel and supplies, air transport has grown enormously since the start of the war. Flying to and from widely scattered battle fronts, rugged planes of the ATC, NATS and Marine air transport service have been seen increasingly until now the Army ATC alone is larger than all prewar civil and military air transport organizations of the world lumped together. The military cargo planes and flying boats have met and conquered the most difficult terrain in the world. Routes range from the mountain-studded Burma "Hump" to vast stretches of blank ocean in both Atlantic and Pacific. Many of these aerial highways were first charted during wartime and a whole series of airfields were hewed out of virgin country to support them.

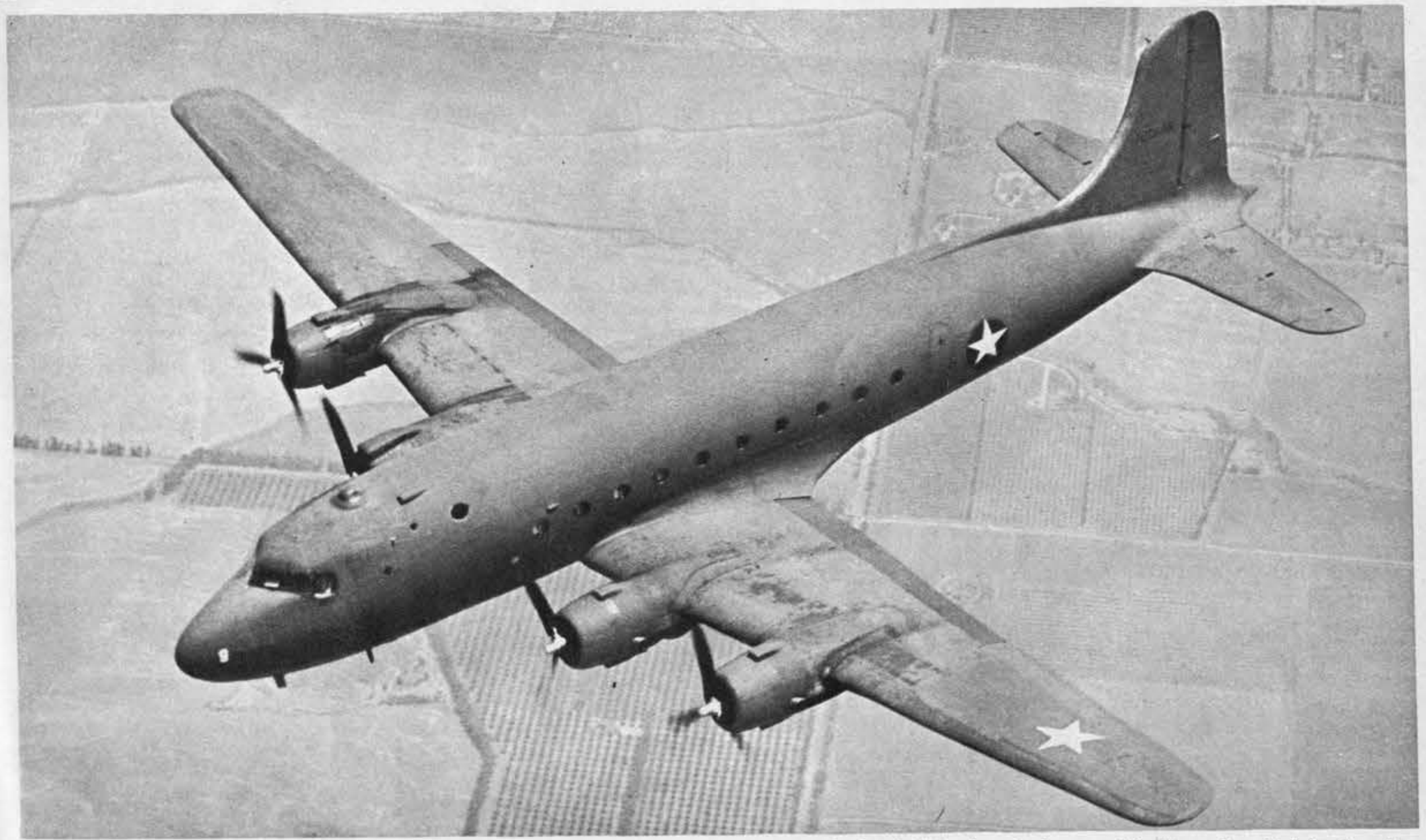
Since air transports are unarmed, heavily laden and usually flying field courses at fixed altitudes, the burden of recognition rests with others. However, their crews are responsible for another and equally important phase of recognition. Early in the war it was decided to use the regular, world-covering transport flights as auxiliary patrols. Crewmen were instructed to be on constant lookout for suspicious items, especially enemy subs and blockade runners, and report sightings by radio immediately.

In the Pacific, where recognition officers are attached to NATS squadrons, reportings are made by means of JMST and officially established joint Army-Navy communications methods. In the Atlantic, a somewhat different reporting method for type, position, weather, etc., known as CIRES (Communication Instructions for Reporting Enemy Sightings) has augmented regular communications.

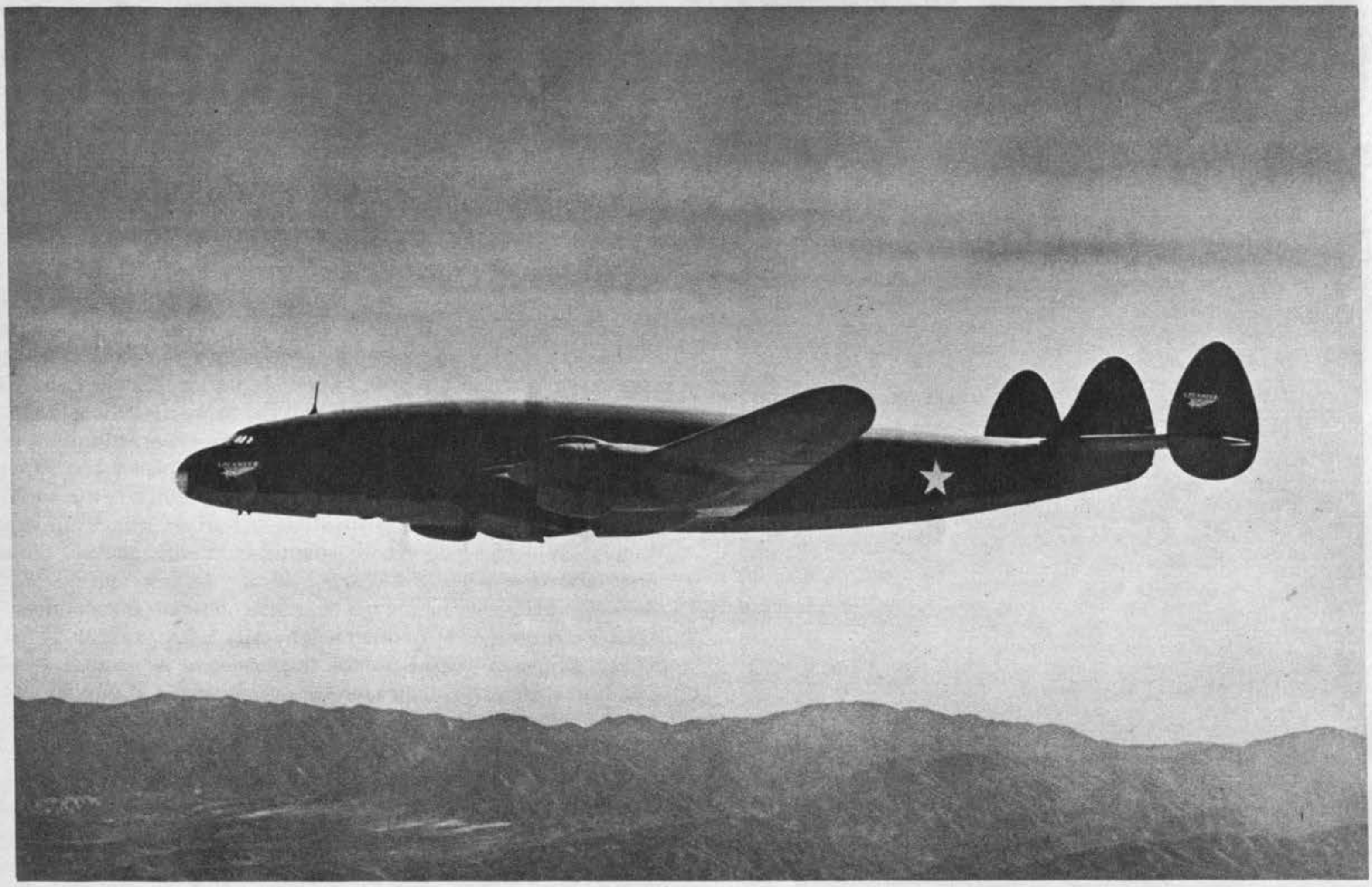
DURABLE C-47 IS SHORT-RANGE MAINSTAY OF ALLIED AIR TRANSPORT, OFTEN OPERATES CLOSE TO THE FRONT. THIS ADAPTATION OF THE DC-3 IS USED BY MARINE TRANSPORT SQUADRONS AS WELL AS ATC AND NATS



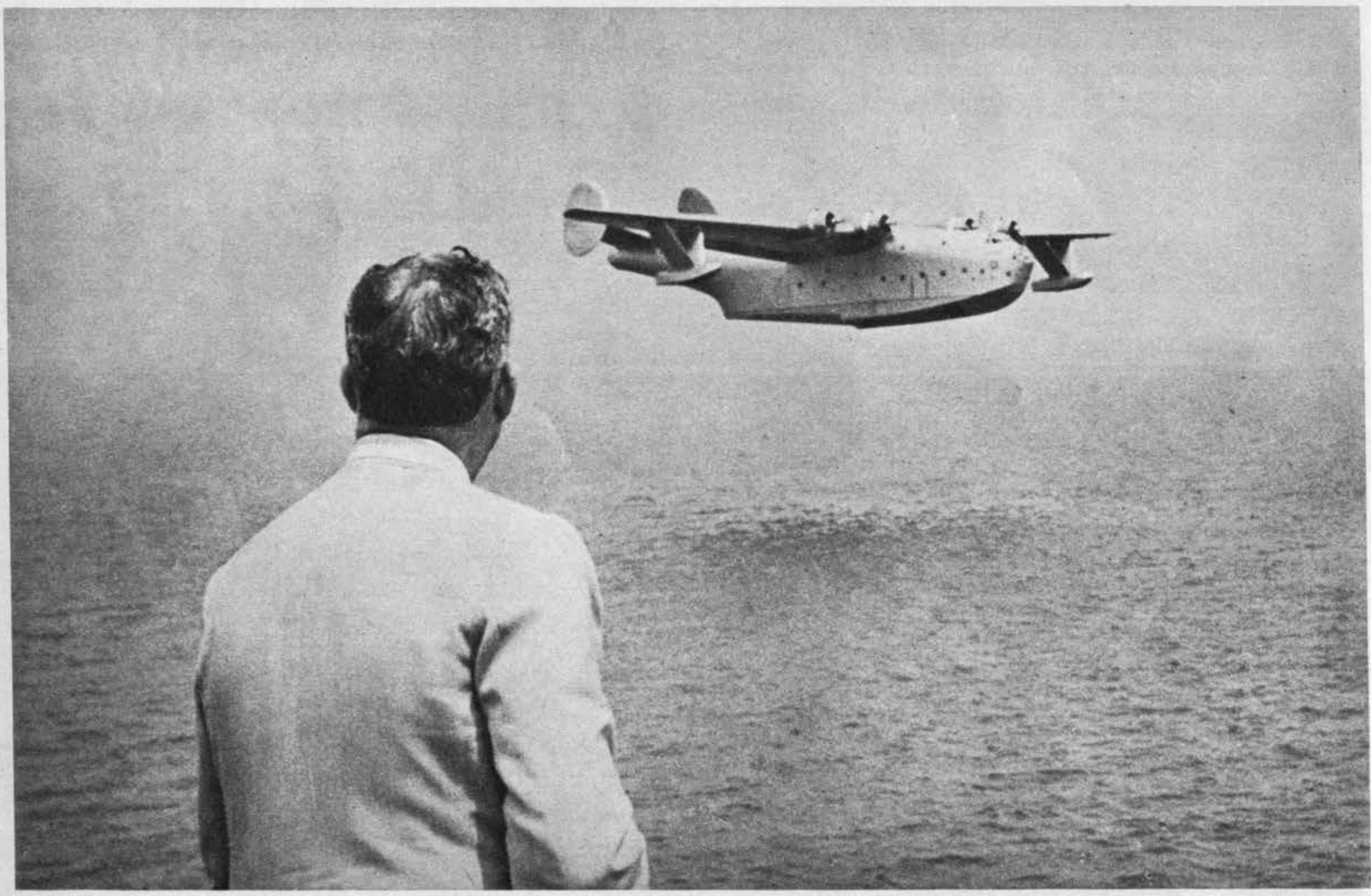
Whalelike fuselage of fat C-46 (R5C) holds a big pay load. For two years, the C-46 has kept open the route to China over the Himalayan "Hump," weathering Jap fighters, storms and dizzy altitudes. Its lines are simple, with smoothly rounded nose and curving fin and rudder.



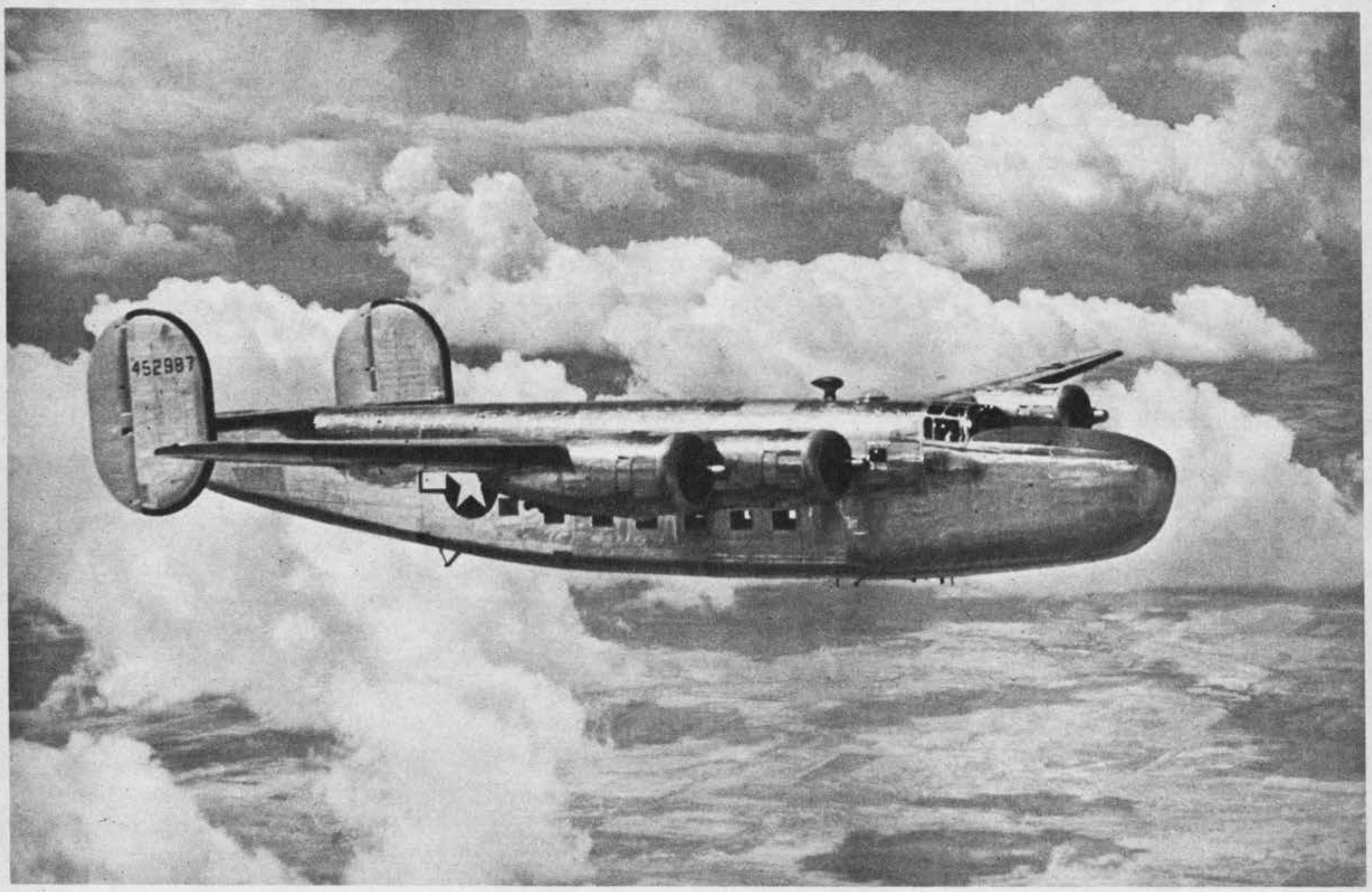
Long-range work horse of both Navy and Army transport services, the C-54 (R5D) flies the great transcontinental, transocean routes. Its straight-backed fuselage is long and bulky, well suited for hauling either cargo or passengers. Fin and rudder is rather high and narrow.



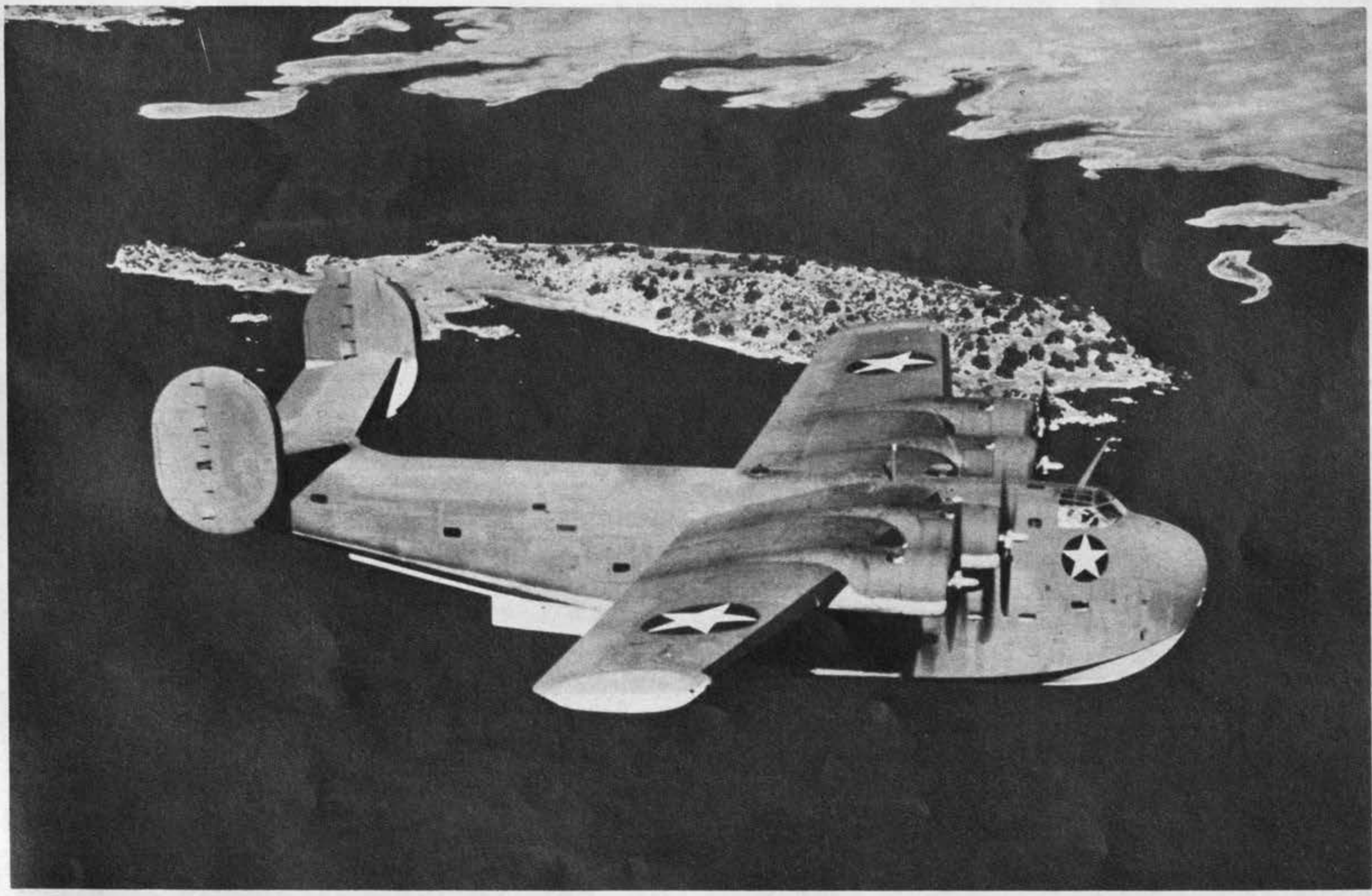
High-speed Constellations will be flying Pacific runs for the Army. Supple lines of the C-69's fishlike fuselage and drooping nose give the impression that the great plane is lunging forward. The tailplane is set high and crowned with three smoothly shaped fins and rudders.



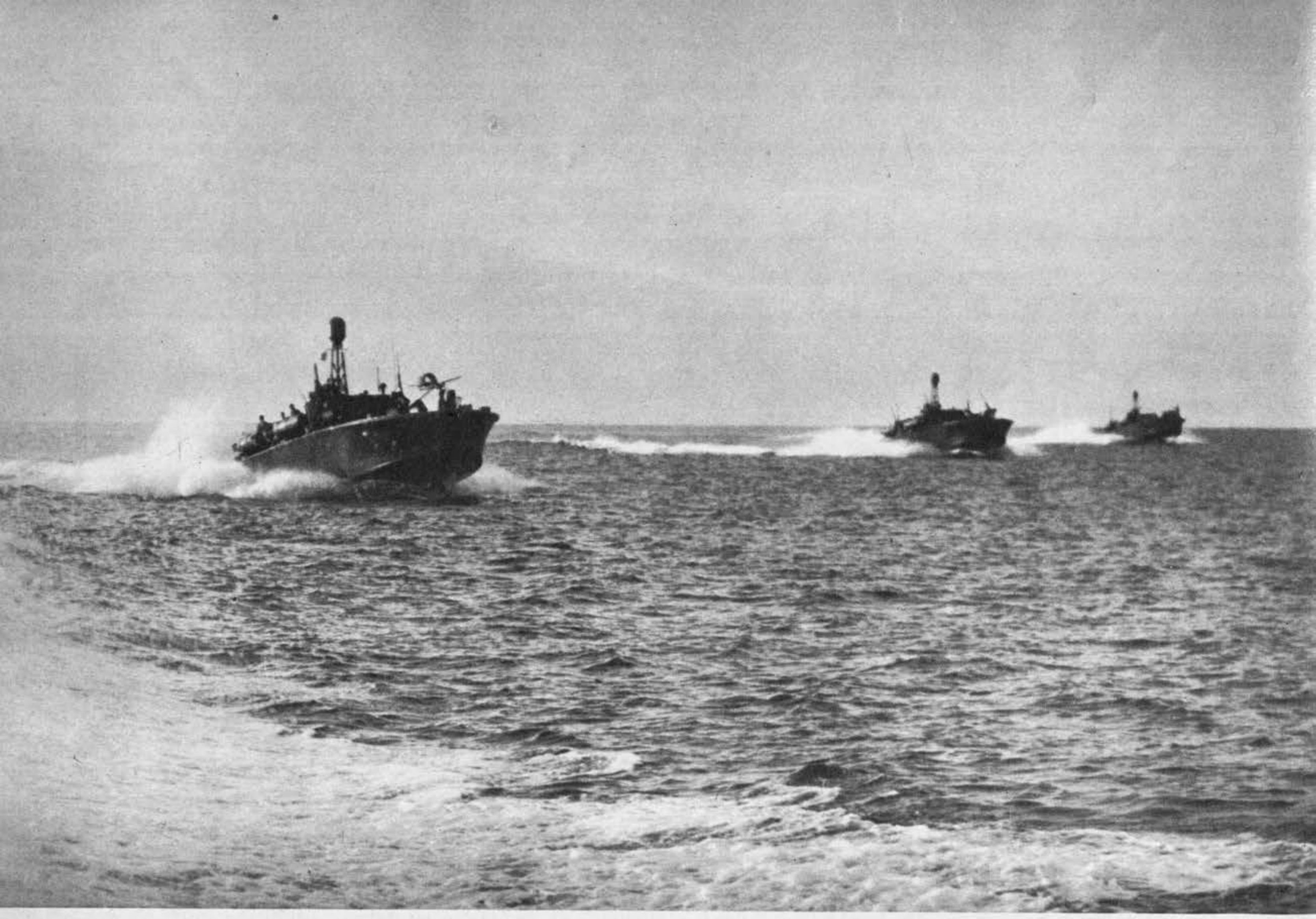
Glenn Martin watches the first flights of his huge new flying boat, the Mars. The original PB2M-1R is now in service as an over-water carrier of great capacity. The enormous hull is suspended from a straight 200-ft. wing and dwarfs glassed-in control cabins in the blunt nose.



Liberator Express, transport version of the B-24 bomber, has a solid nose, windows cut in fuselage and no paint. Numbered C-87 (RY-1 and 2 by Navy) as a transport, the Liberator is one of many combat types of aircraft adapted to cargo-carrying by both sides during the war.

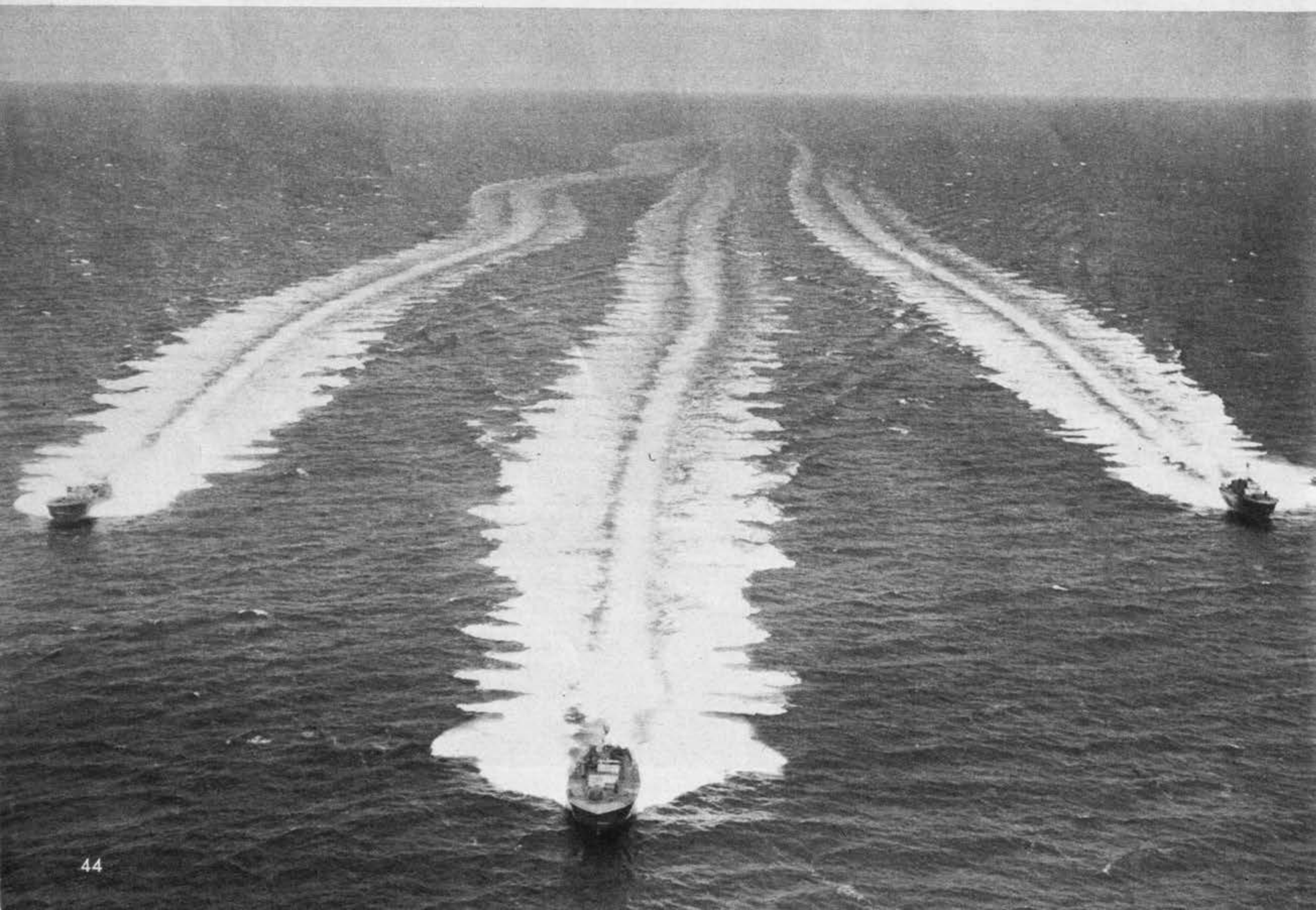


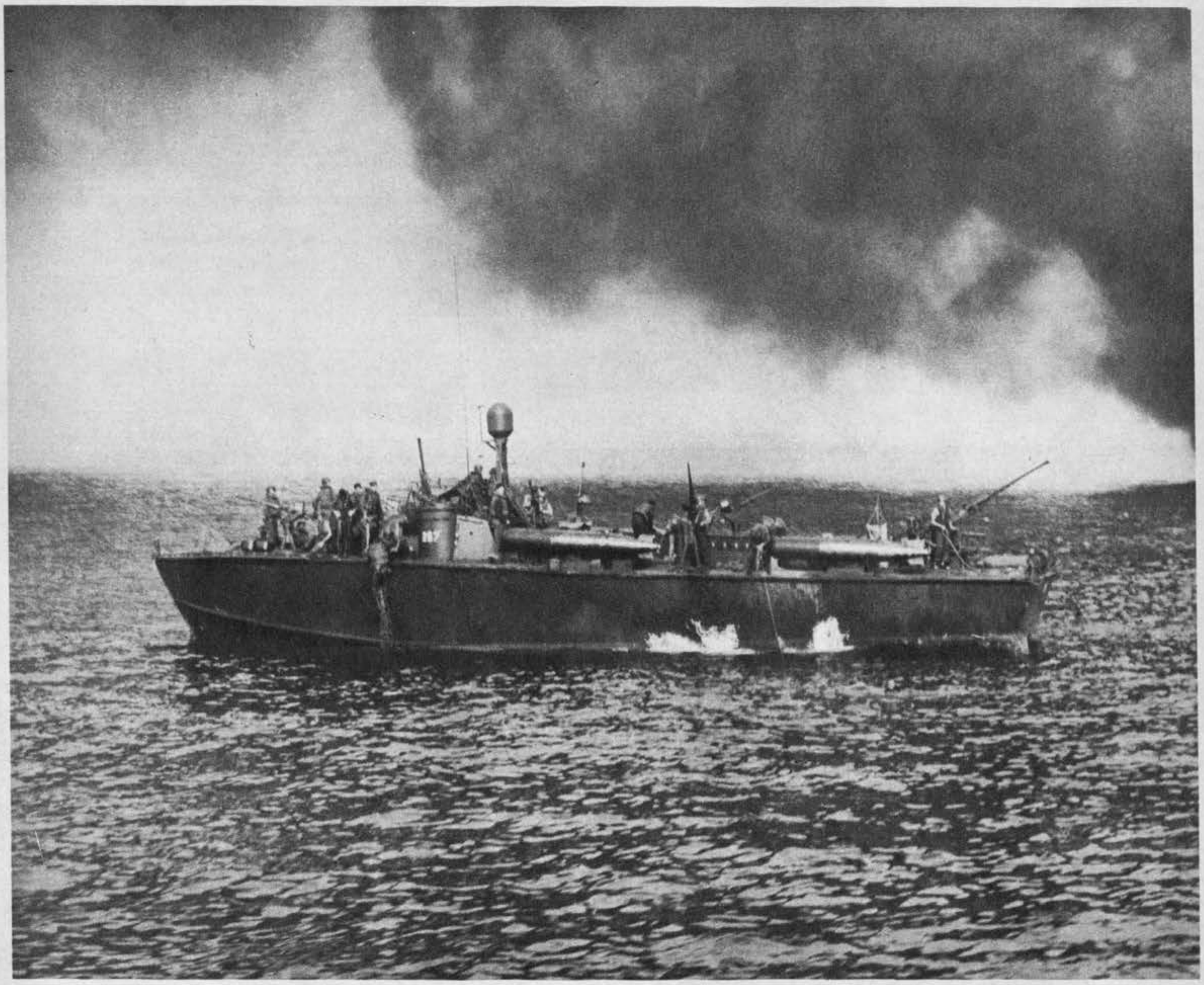
Snub-nosed Coronados, stripped of their turrets and combat gear, serve with NATS as PB2Y transports. Built by Consolidated Vultee, the Coronado shows family resemblance to the Liberator (*top*), especially in its tail. Angular wing has squared tips and a straight trailing edge.



High 16-ft. mast with bulging radar dome is visible from some distance. Note how dome stands out on the PT at extreme right (*above*).

V-formation (*below*) is typical pattern for three boats. White background made by characteristic wake outlines PT, helps identify it.





DECK OF HIGGINS-TYPE PT IS CLUTTERED WITH TORPEDOES AND SMALL-CALIBER AA GUNS. ARMAMENT IS EXTENSIVE FOR THIS SIZE BOAT

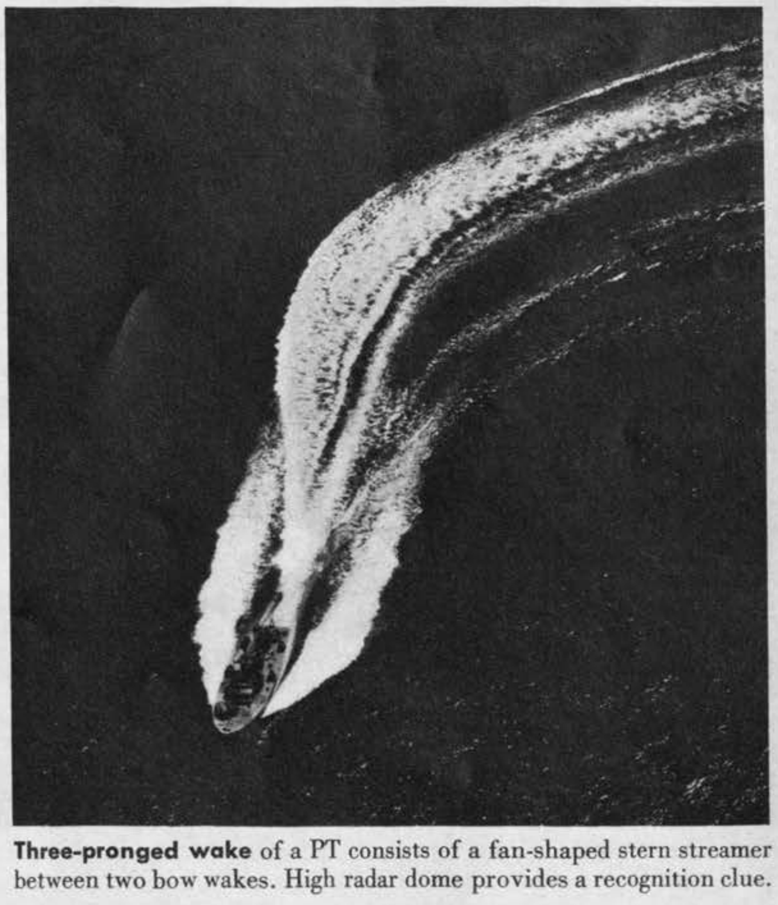
POWERFUL PT's

They are always tough craft to recognize

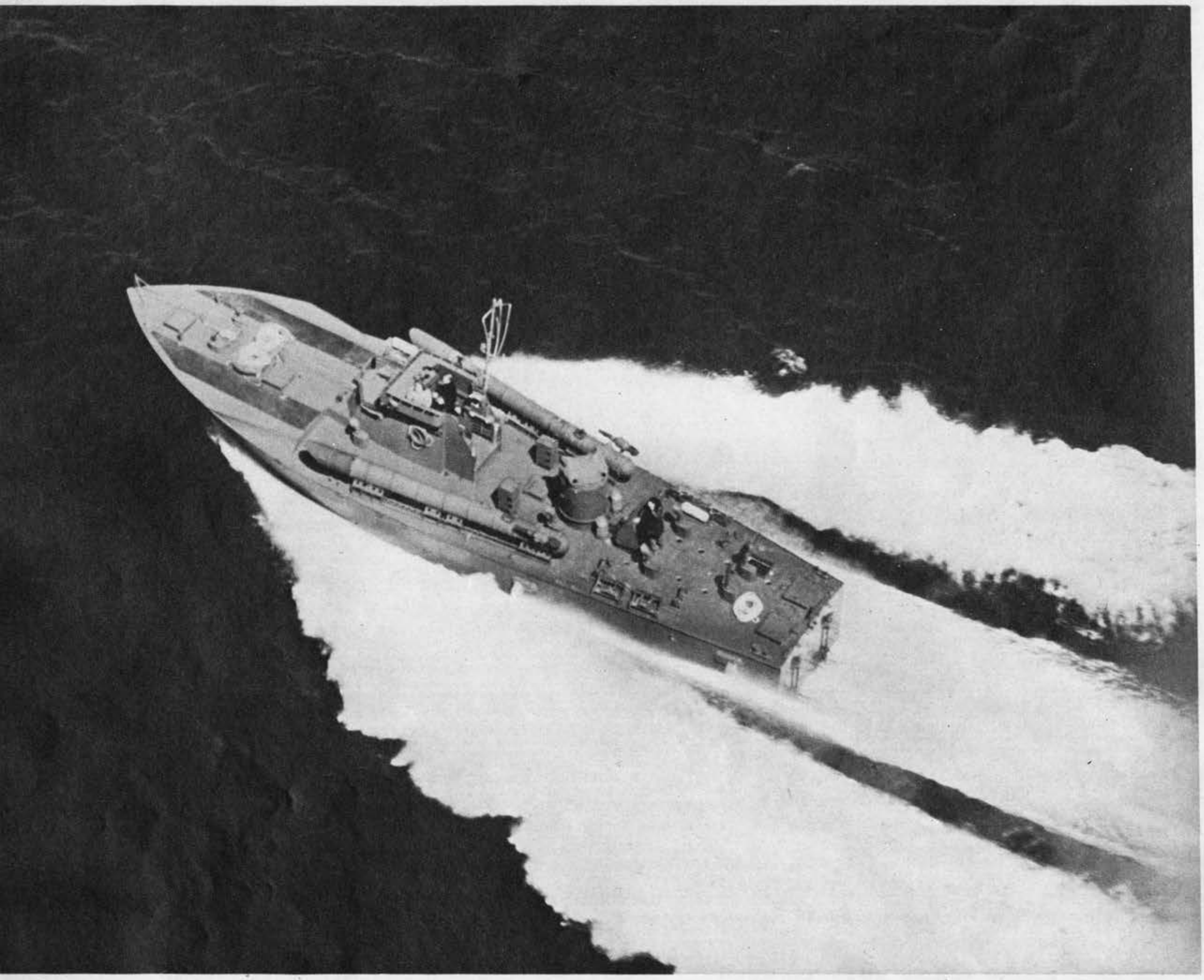
Small boats always present difficult recognition problems and no group of small craft looks more similar to one another than PT's. Not only is it almost impossible to distinguish types of PT's from high altitudes, it has also proved very difficult to tell patrolling PT's from the small craft which make up the bulk of Japan's inter-island traffic.

But rules exist which should enable pilots to determine quickly if the object of their scrutiny is a PT. No craft has a wake quite like that made by the PT's. A striking feature is their speed which is not approached by any other combat craft. It is also essential to know that all U. S. and some British PT's have high radar domes and cluttered decks.

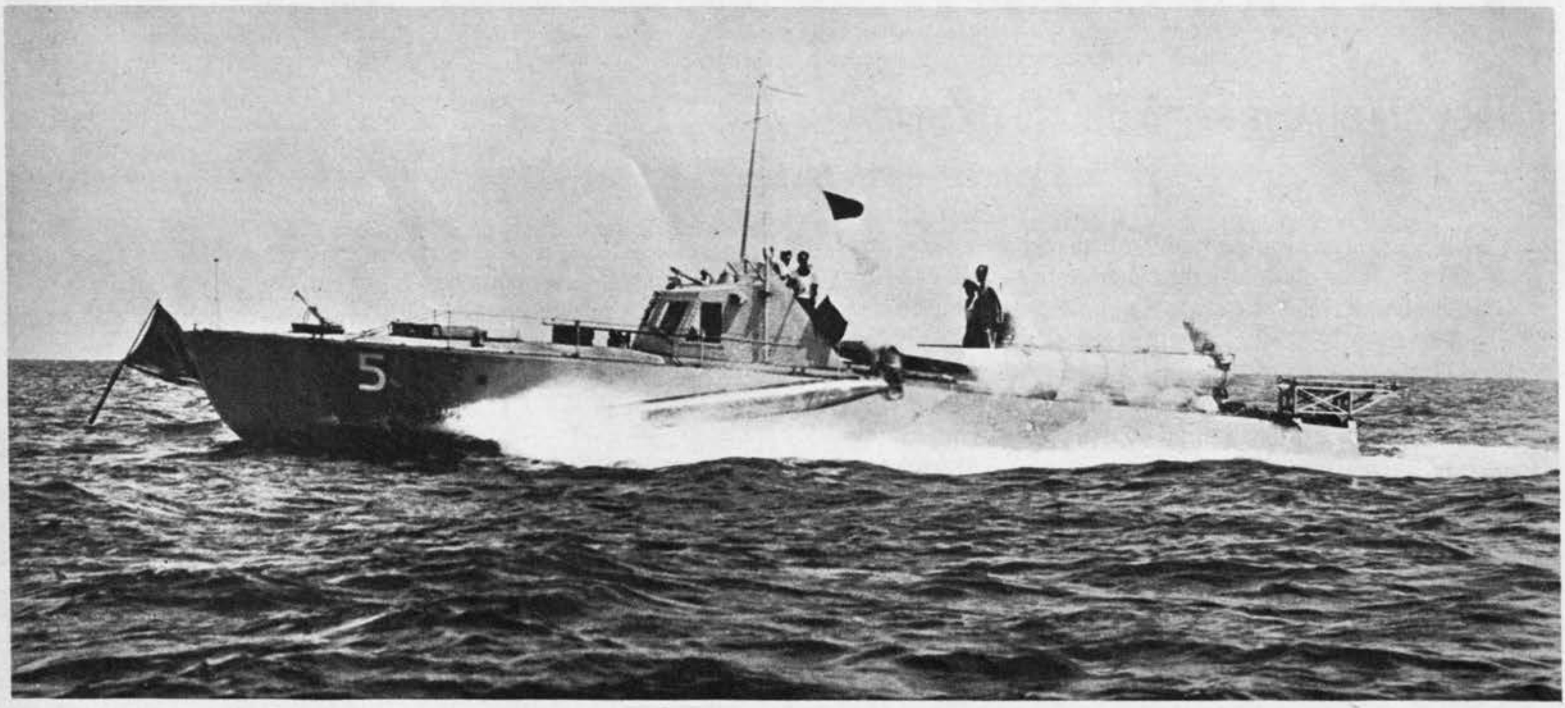
Up to now the chief difficulty has been between U. S. PT's and small Jap boats. However, the enemy will probably increase the use of PT's as we approach the home islands. Meanwhile Allied airmen must remember that U. S. PT crews have had too many close calls to be patient.



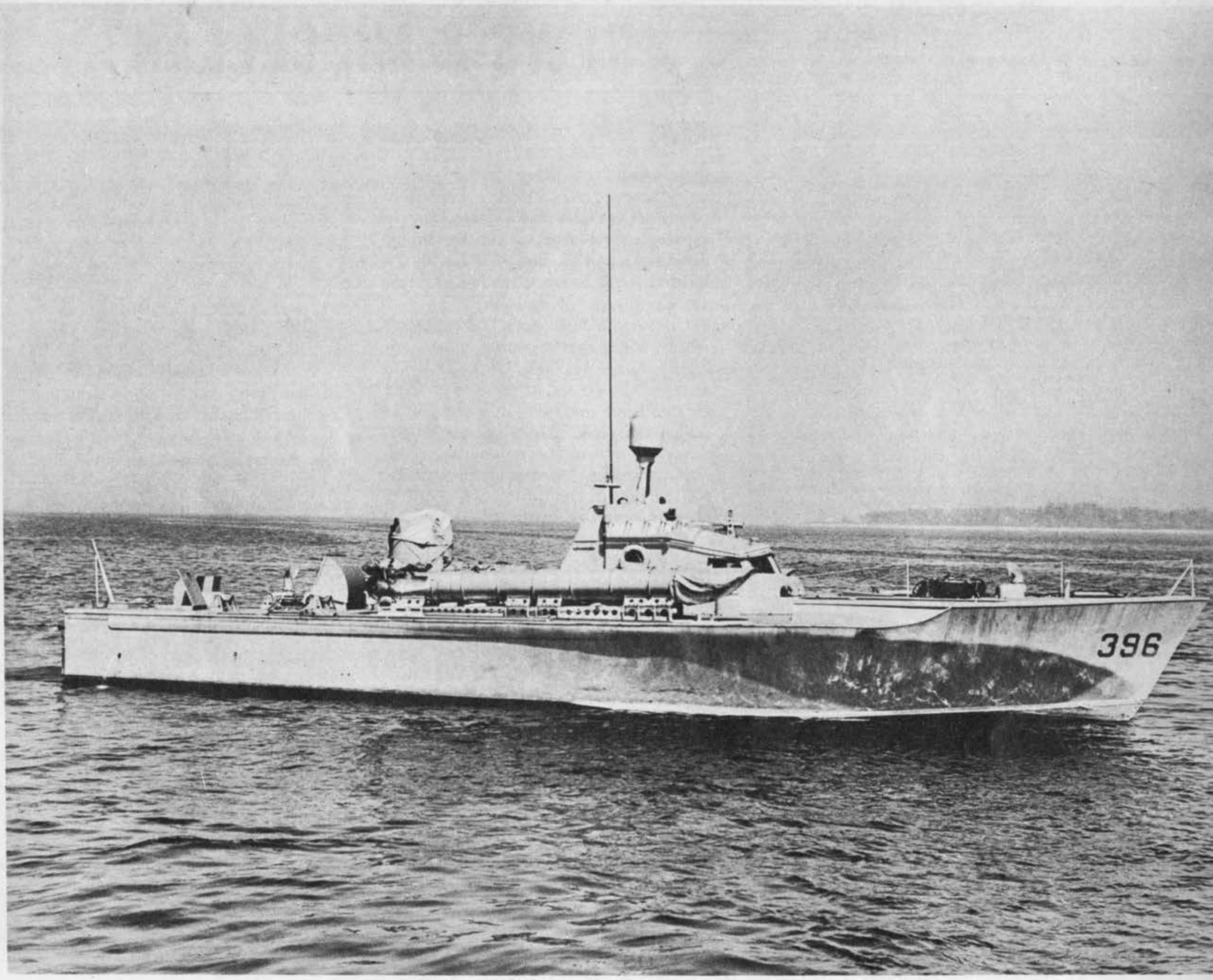
Three-pronged wake of a PT consists of a fan-shaped stern streamer between two bow wakes. High radar dome provides a recognition clue.



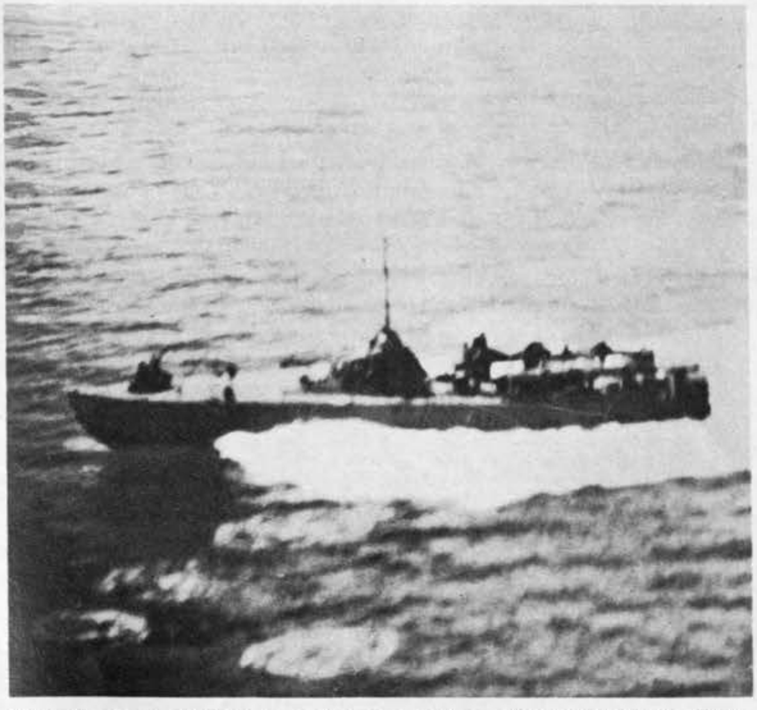
Vosper PT, shown here without radar dome, is standard British type. The prominent machine-gun dome between bridge and stern, and bridge abaft wheelhouse are important features. Unlike U.S. PT's, Vosper has tubes fitted amidships, launches torpedoes through scallops in sides.



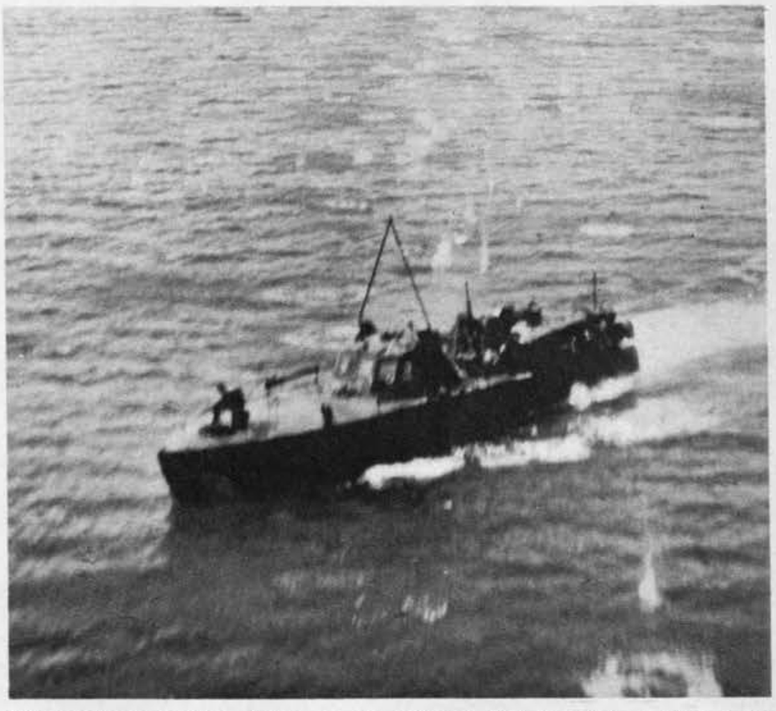
Lack of radar dome and the less cluttered deck of this former Netherlands motor torpedo boat, now used by the Japanese, are about the only indications that craft is not Allied. From similarity in lines and size, a high-altitude observer would only be able to distinguish it as a PT.



Vosper's radar dome is not so high as on some U. S. types. With more armament than Jap PT's, British PT's have the cluttered decks characteristic of the Allied models. However, Jap PT's, profiting from Allied operations, might turn up with unexpectedly heavy firepower.



Torpedo tubes aft help in aerial recognition of Dutch-built Jap PT's. Their 38-knot top speed is somewhat less than that of U. S. craft.



Triangular masting of Jap-operated Dutch PT's is evident when craft are seen from front or rear. They are known as Japanese PT 101's.

QUIZ ANSWERS

QUIZ NO. 1

1. SB2C's
2. Val
3. F4U
4. Zeke 52
5. FW-190
6. P-51
7. F6F
8. Spitfire
9. P-47's

QUIZ NO. 2

1. Judy
2. Me-110
3. Oscar
4. Nell, Betty
5. Irving
6. Jake
7. P-40's,P-38

QUIZ NO. 3

1. German PzKw IV tank
2. U.S. M-4 medium tank
3. German 1-ton half-track towing 20-mm. Flakvierling
4. German PzKw III tank
5. German 8-ton half-track with 37-mm. Flak
6. Japanese light tank, Model 2595
7. German 12-ton half-track
8. German PzKw IV with armored skirting
9. German 8-ton half-track towing 88-mm. Flak
10. U. S. M-10 tank destroyer
11. German 4-wheel armored car
12. U. S. M-26 medium tank
13. German 75-mm. SP gun on Czech 38 chassis
14. British Cromwell tank
15. U. S. M-8 SP howitzer
16. U. S. M-15 AA carriage

QUIZ NO. 4

1. South Dakota Class BB
2. Nagato Class BB
3. British "J-K-N" Class DD
4. H. M. S. Warspite BB
5. Bagley Class DD
6. Alaska Class CB
7. Richelieu BB

QUIZ NO. 5

1. Tempest V
2. F6F
3. C-54
4. F7F
5. Zeke 52
6. B-24N
7. SC-1
8. Warwick I
9. Judy
10. B-25
11. Betty
12. C-82
13. Oscar 2
14. A-26
15. Spitfire XIV

The cruiser on this month's cover is H. M. S. Glasgow, of Britain's swift Southampton Class, patrolling in the rough North Sea waters. Completed in 1937–38, Southampton CL's displace 9,100 tons, are 591 ft. long, have twelve 6-in. guns in triple turrets. For more on Great Britain's Navy see pages 25–33.

CREDITS

The pictures used in the *Journal*, unless otherwise specified (*see below*), came from the Allied Armed Services.
Cover—British Combine
2—Fourth row, center, William Vandivert
3—J. R. Eyerman
13—Right center, Sovfoto; bottom right, British Official photo from Acme
18—North American Aviation, Inc.
32—Bottom, Acme
36—Top, Carol Eyerman; bottom, Associated Press
39—Right center, International
42—Top, Johnny Florea; bottom, Thomas D. McAvoy
43—Top, Consolidated Vultee Aircraft Corp.; bottom, Otto Menge, Consolidated Vultee Aircraft Corp.
51—Second row, right, William Vandivert

NEWS & MISCELLANY

NEWS

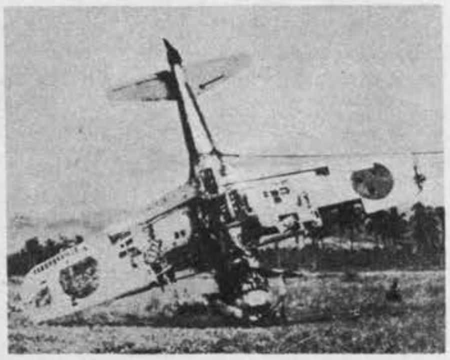
Jap recognition setup in her surface navy shows a great divergence from U. S. practice. On a U. S. ship a lookout merely reports a sighted object and the bridge decides what it is. But on a Jap ship a lookout, with a special rating as such, actually makes the decision.

On board a Jap ship a "recognition" officer, not an expert himself, supervises highly trained lookouts. These lookouts are specially chosen at the end of their boot training and sent to a navigation school for a six months' course where they receive three or four months' recognition training—moving pictures, models, silhouettes and posters. In addition to these expert lookouts (about 15 on a cruiser) there is a larger group, self-taught or coached by the experts (about 50). Only a few officers are recognition experts and those are self-taught.

P-80, first U. S. jet combat plane, is expected to be operational in the near future. Believed to be the world's fastest fighter, it is a single-seat, low-wing monoplane with single fin and rudder and a tricycle under carriage. Two air intakes nestle on the sides of the fuselage at the wing roots. A single turbine jet unit is located in the rear of the fuselage. All armament is in the nose. Called Shooting Star, the P-80 will have not only more speed but greater range than the German "squirts" now in operation.

Frank 1 (*above*), first new Jap army fighter in full operational status since Tojo, is now reported in heavy production. Two nose-mounted 12.7-mm. MG's fire through arc of four-bladed electric propeller. Length is 32 ft., 4 in.; climb, 2.7 minutes to 10,000 ft.; service ceiling, 39,000 ft. Frank also has one 20-mm. cannon in both outer wing sections.

New Jap floatplane, possibly late-model reconnaissance "Nanzan" or "Seiran," has been sighted in Malaya. Recognition features: narrow fuselage, inline engine, elliptical wing, twin floats. Span is about 46 ft., length about 41 ft.



Crashed Frank shows blunt wingtips, long nose. It has armor behind pilot seat.

Jap dummy planes have diverted some of our air striking power in the Philippines. Enemy dummies are now excellent in detail. They have canopies of Cellophane or painted cloth, some even with painted ribs.

CORRECTIONS

Wildcats on page 20 of January issue of the *Journal* are FM-1's, not FM-2's.

In last month's *Journal* the vital statistics under the silhouettes of the P-47N on page 49 were incorrect. They should have read:

SPAN: 42 ft., 4 in.
LENGTH: 36 ft., 1 in.
APPROX. MAX. SPEED: above 450 m.p.h.
SERVICE CEILING: over 40,000 ft.

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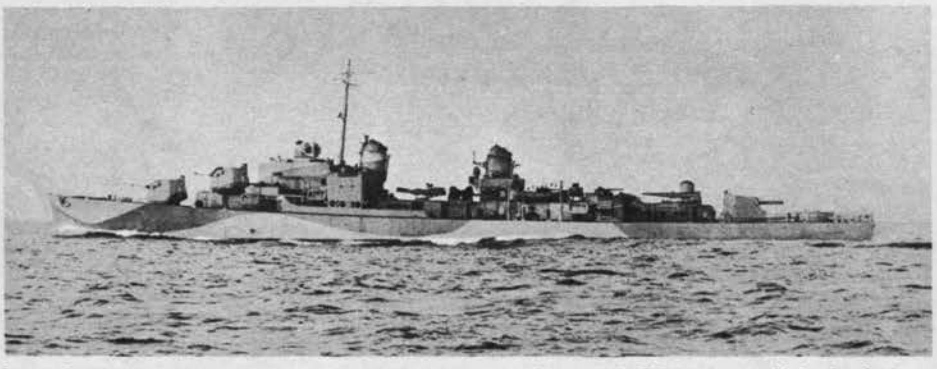
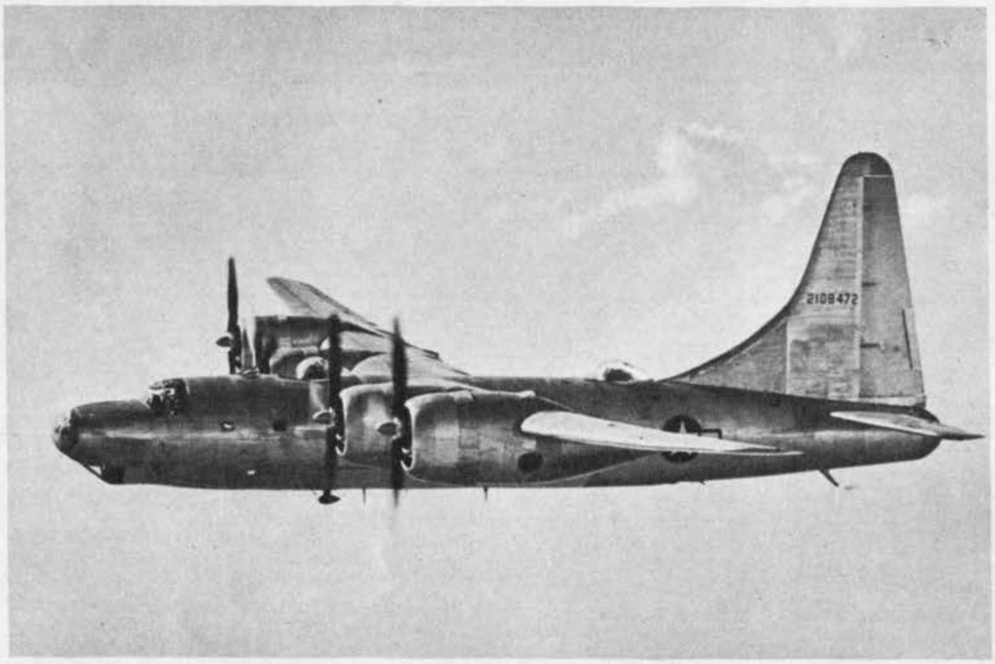


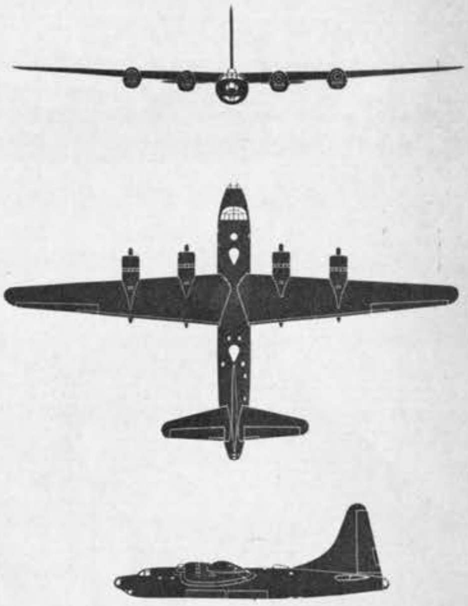
Long-hull Sumners have 14 ft. more space between stacks to hold a loading machine. Modification will be built into 116 units of this U. S. destroyer class.

HEAVY BOMBER

U.S.A.

B-32





DISTINGUISHING FEATURES: B-32 is a four-engine, high-wing monoplane. Broad-based fin and rudder is exceptionally high, rises from an unbroken dorsal line. Fin fairs forward, rudder edge is steeply slanted. Long narrow wing has equal taper to rounded tips. Nacelles are underslung. Wing is set well back, leaving a long nose. Wide, circular fuselage extends beyond tailplane, which has more taper to leading than trailing edge.

INTEREST: Aptly named Dominator, the B-32 is the second USAAF aircraft in the very heavy bomber category. Although slightly smaller, it is comparable to the B-29 in speed, range and bomb load. The B-32 is built by Consolidated Vultee and has a definite design relationship to the familiar Liberator. Powerplant, consisting of four 2,200-hp. Wright Double Cyclones, is similar to that installed on the Superfortress.

SPAN: 135 ft.
LENGTH: 83 ft.
APPROX. MAX. SPEED: over 300 m.p.h.
SERVICE CEILING: 30,700 ft.

MARCH 1, 1945
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

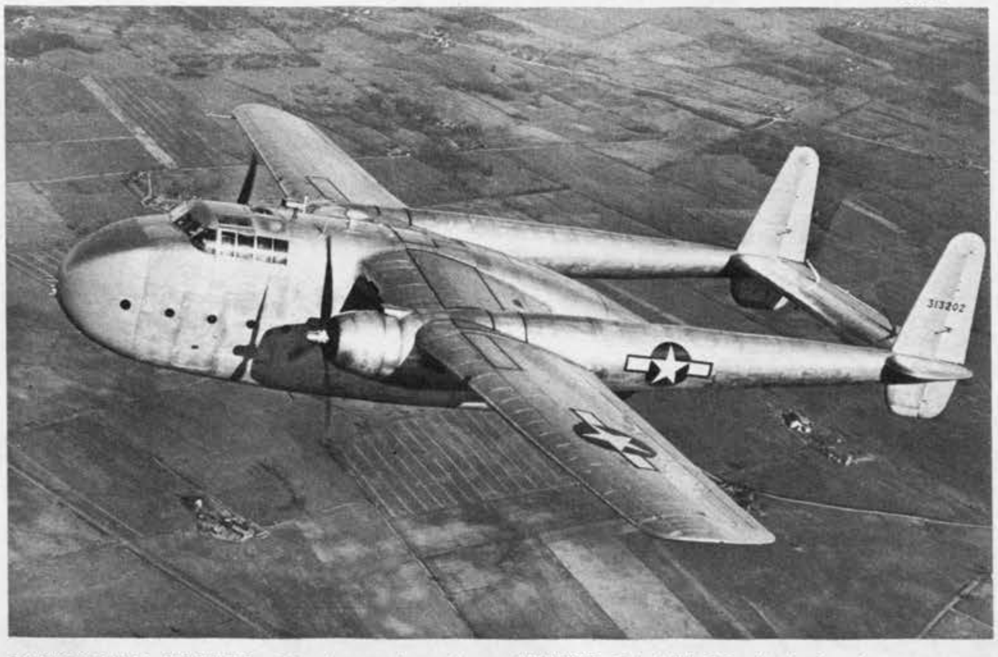
RESTRICTED

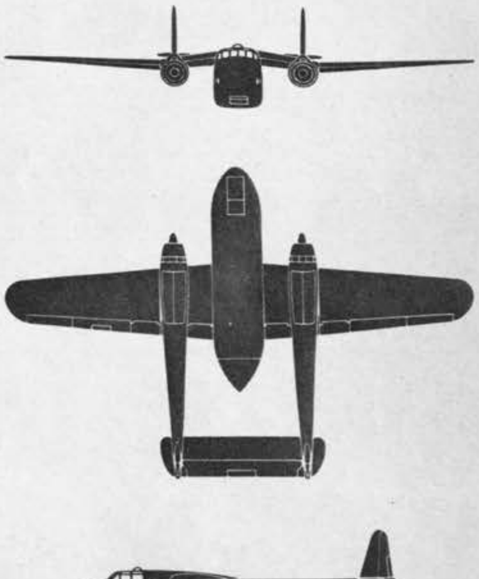
NOTE: This page is to be cut along dotted lines (***above and below***), added to the proper nation's section in the Recognition Pictorial Manual. The dots indicate perforations.

TRANSPORT

U.S.A.

C-82





DISTINGUISHING FEATURES: C-82 is a twin-engine, high-wing monoplane with twin booms. Fuselage is deep and bulky and ends beyond wing's trailing edge. Inverted gull wing has equal taper to rounded tips. Booms extend aft from the engine nacelles to twin tail assembly. Fins and rudders are high, narrow and triangular. In head-on view nacelles and fuselage appear very underslung; fins rise in line with the nacelles.

INTEREST: Fairchild C-82 is the first Army transport designed and produced in quantity for combat use. Built to carry heavy loads in and out of small rough fields, the C-82 will bring new mobility to airborne troops and matériel movement in combat areas. The fuselage opens laterally at the rear to permit rapid loading of bulky cargo. With maximum pay load of 19,000 lb., the C-82 can carry 70 soldiers and equipment.

SPAN: 106 ft., 5 in.
LENGTH: 75 ft., 10 in.
APPROX. MAX. SPEED: 210 m.p.h. at 13,000 ft.
SERVICE CEILING: 22,000 ft.

MARCH 1, 1945
FROM DATA CURRENTLY AVAILABLE

WAR DEPARTMENT FM 30-30
NAVY DEPARTMENT BUAER 3

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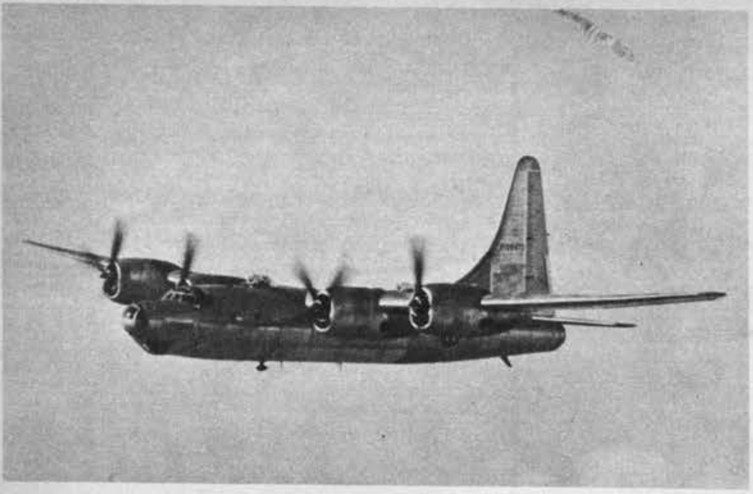
A



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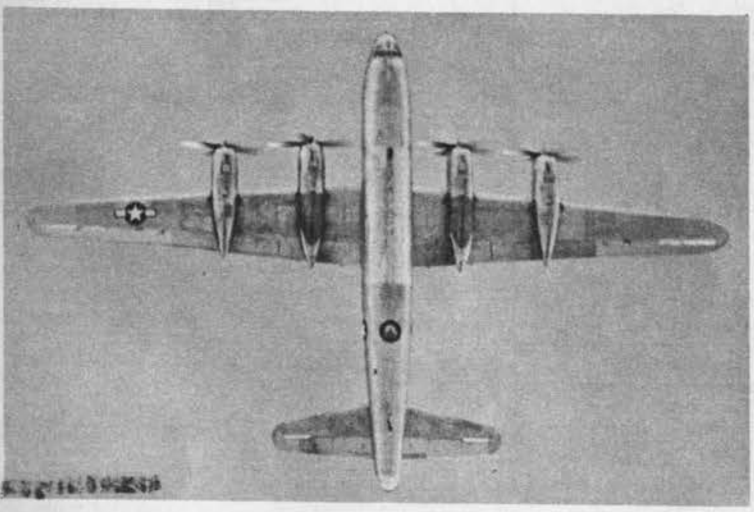

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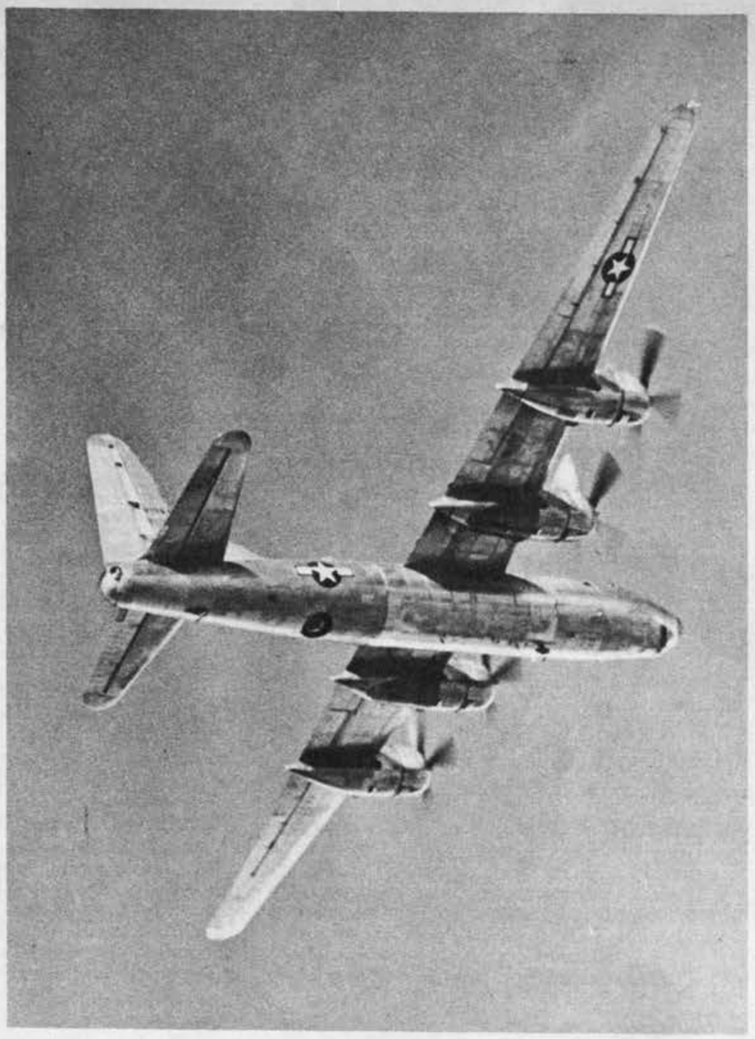
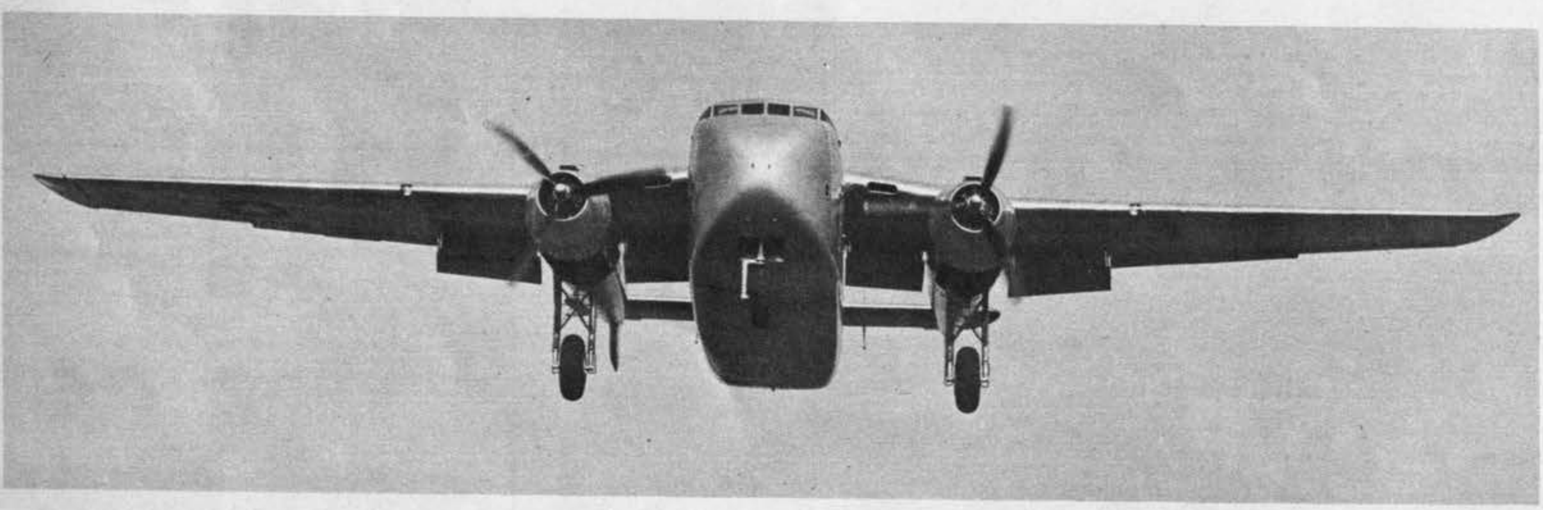


B-32 has a huge, soaring fin and rudder which is its most distinctive recognition feature. Versions of this tail assembly have already appeared on the PB4Y-2 and B-24N. B-32's size and power put it in the superbomber class along with the B-29.

C-82 can evacuate 75 casualties and three attendants when it is used as an ambulance plane. The huge cargo and troop transport is powered by two Pratt and Whitney engines, each of which is rated at 2,100 horsepower. It is nicknamed the Packet.

A



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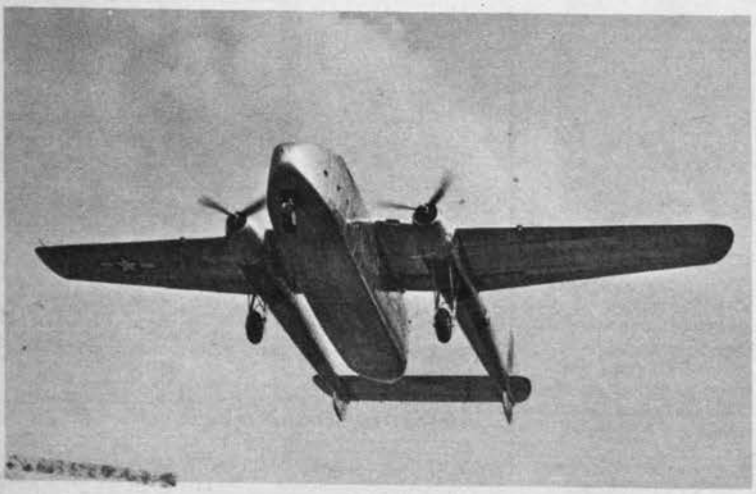

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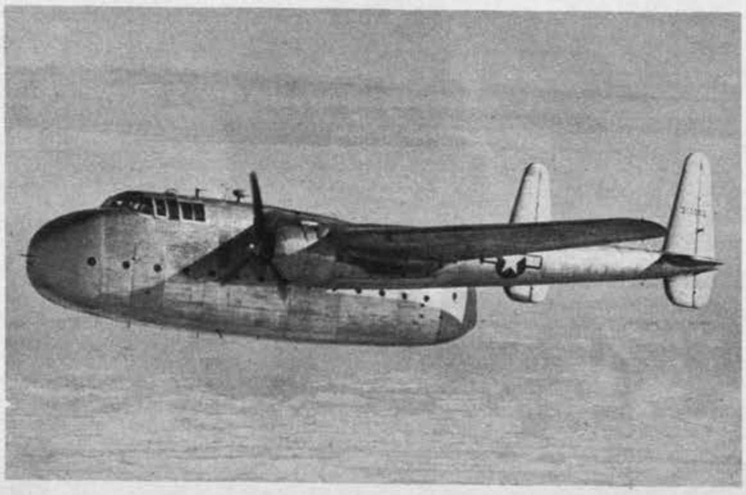
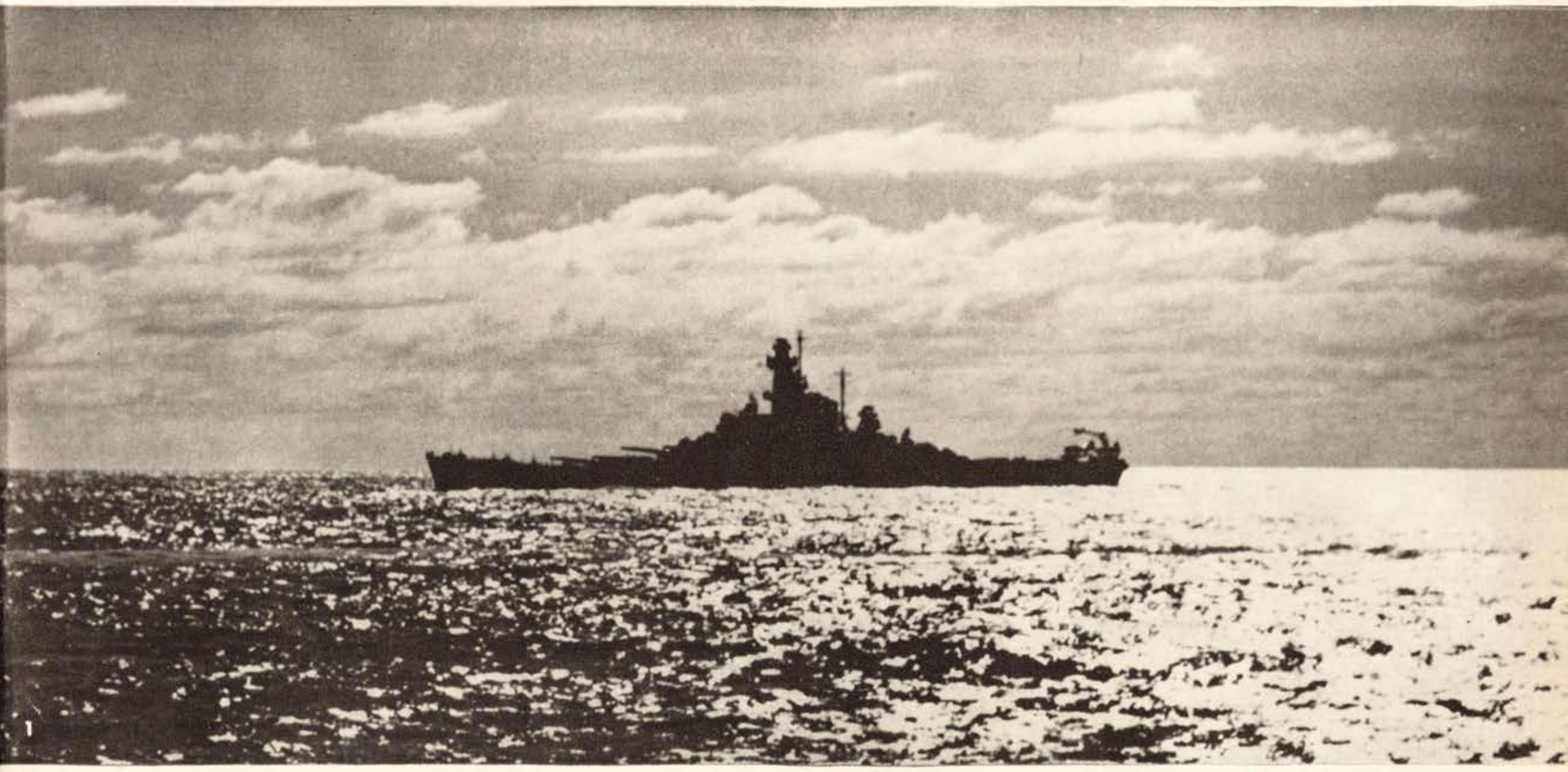


QUIZ NO. 4: ONE-STACK FIGHTING SHIPS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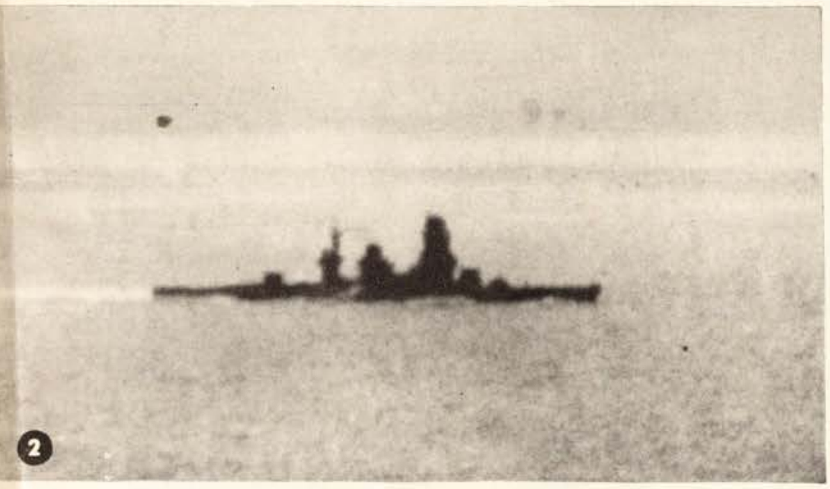
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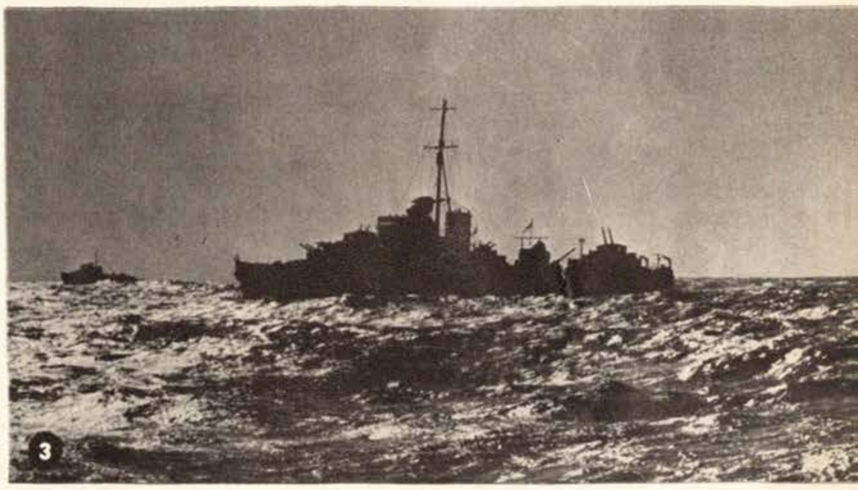
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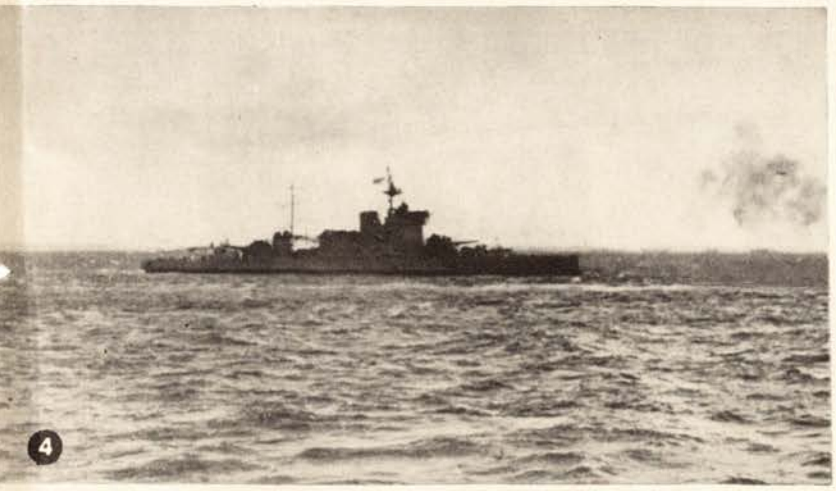
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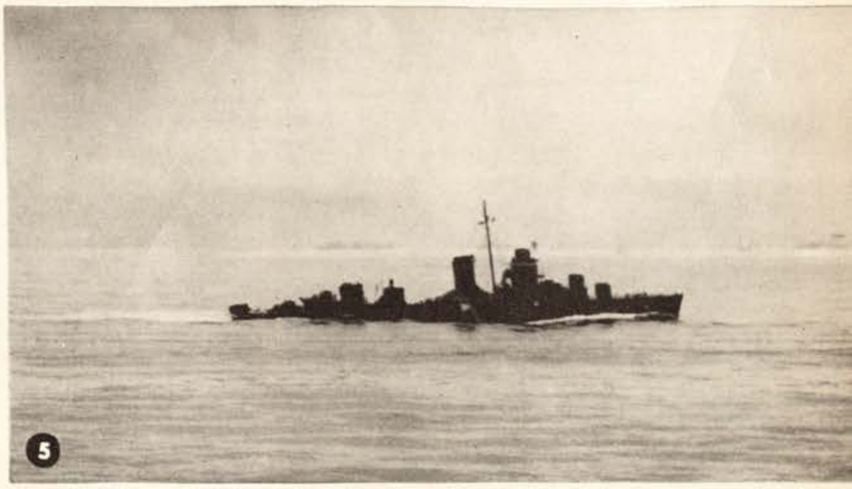
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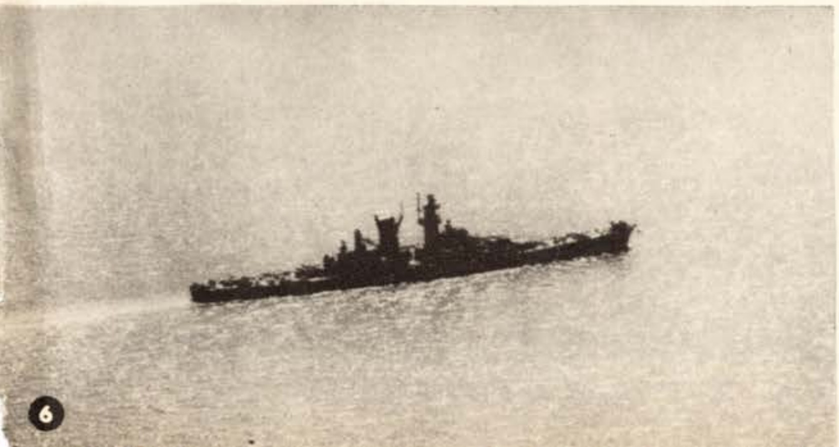
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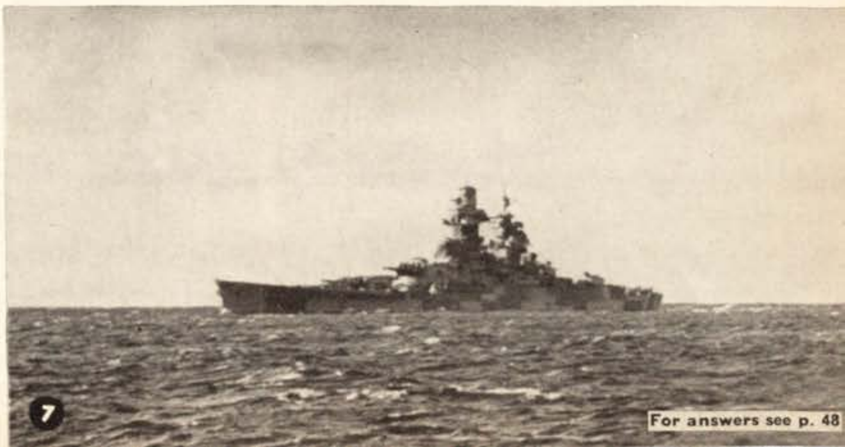
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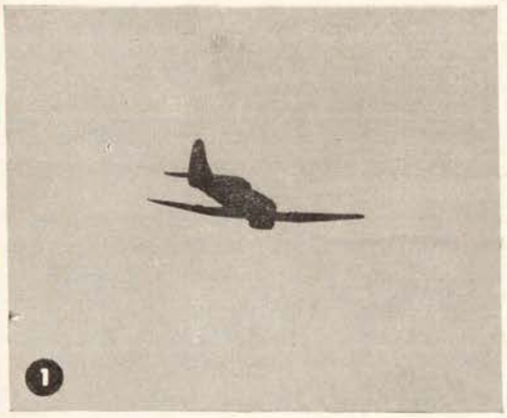
For answers see p. 48

QUIZ NO. 5: THIS MONTH'S SILLOGRAPHS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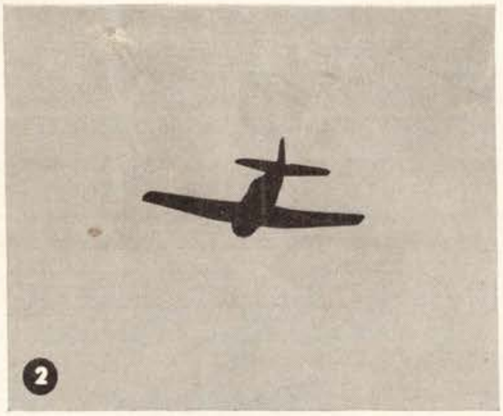
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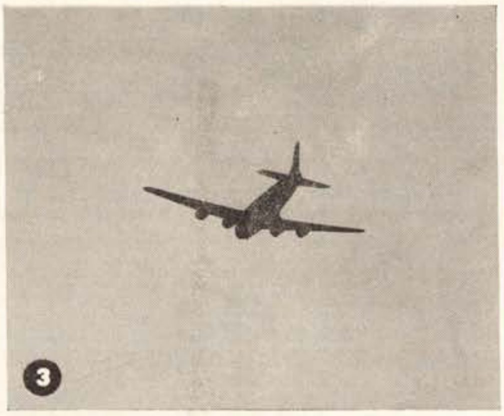
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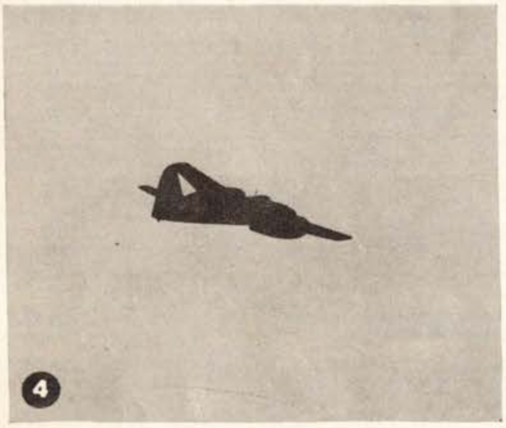
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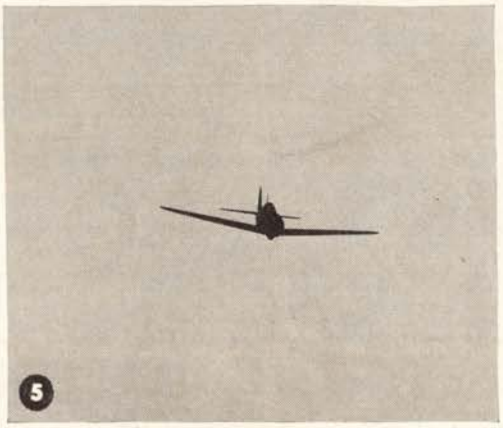
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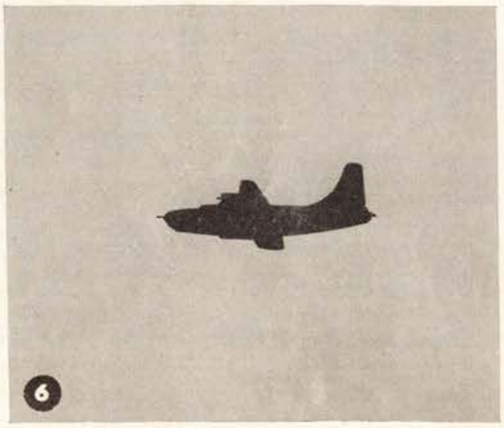
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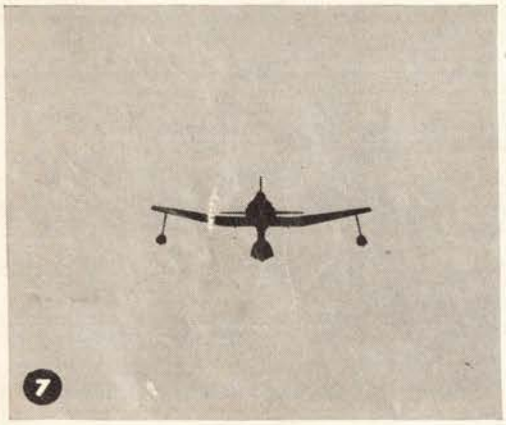
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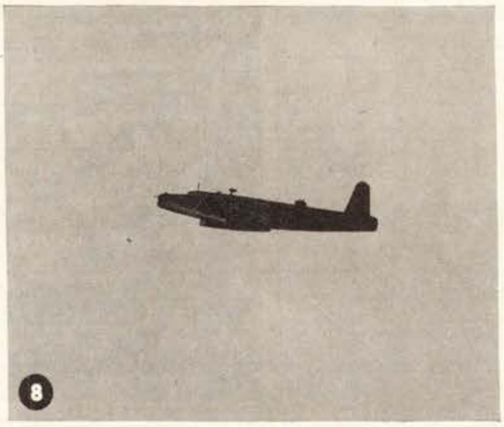
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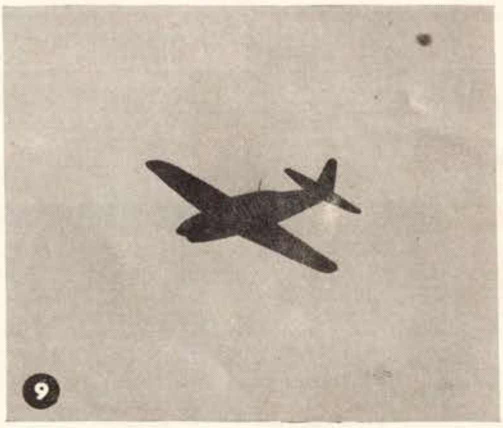
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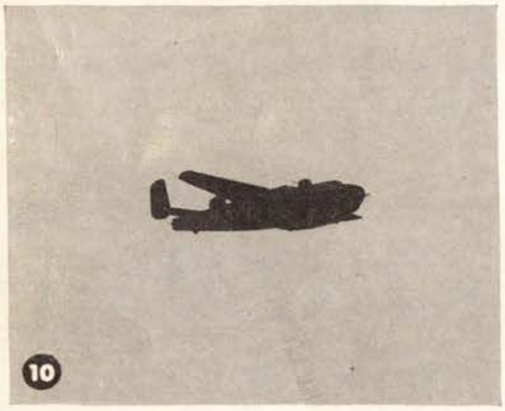
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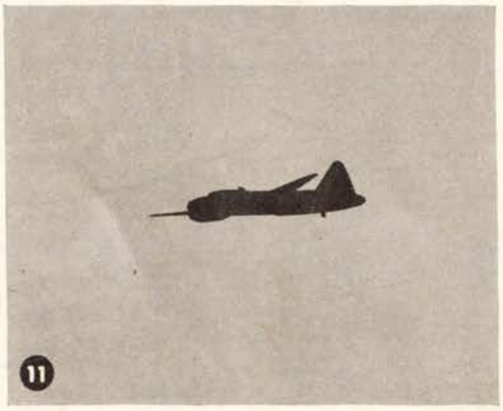
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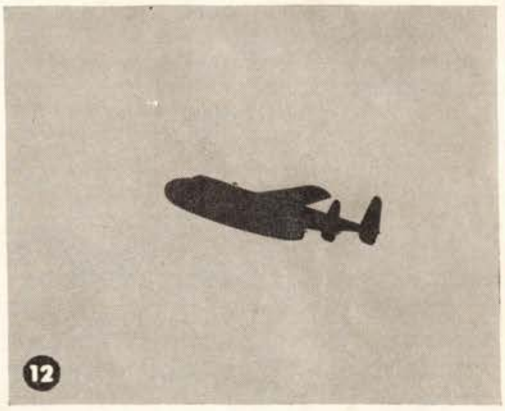
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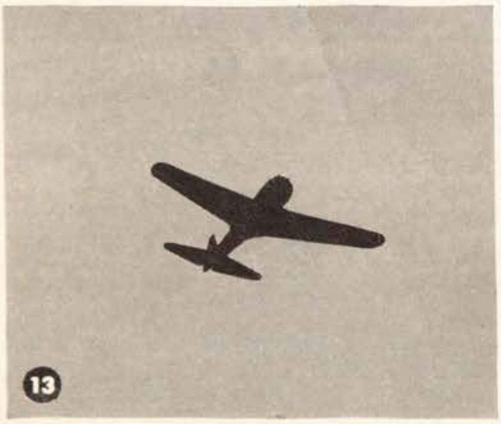
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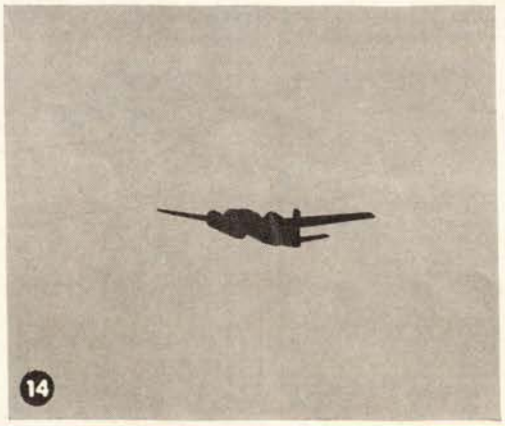
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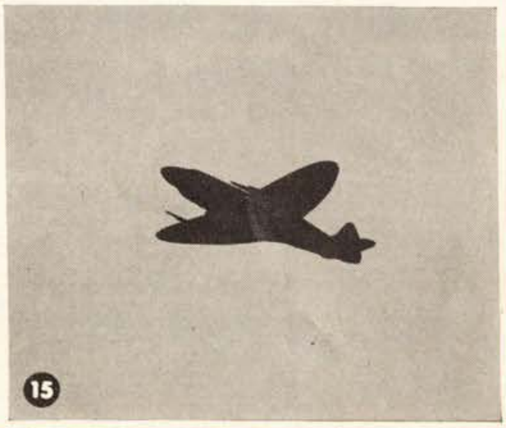
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For answers see p. 48